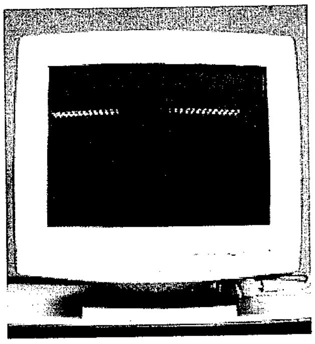
17" Auto scan Color Monitor

Service
Service
Service

V25519

17B2302Q/00C



EPA POLLUTION PREVENTER

DDC/Audio/Power saving/Tilt correction

Service Manual

Horizontal frequencies
30 - 86 kHz

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REFER TO BACK COVER FOR IMPORTANT SAFETY GUIDELINES

SAFETY NOTICE

ANY PERSON ATTEMPTING TO SERVICE THIS CHASSIS MUST FAMILIARIZE HIMSELF WITH THE CHASSIS AND BE AWARE OF THE NECESSARY SAFETY PRECAUTIONS TO BE USED WHEN SERVICING ELECTRONIC EQUIPMENT CONTAINING HIGH VOLTAGES.

CAUTION: USE A SEPARATE ISOLATION TRANSFORMER FOR THIS UNIT WHEN SERVICING.

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PHILIPS

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PCS 98 259

IMPORTANT SAFETY NOTICE

Proper service and repair is important to the safe, reliable operation of all Philips Consumer Electronics Company** Equipment. The service procedures recommended by Philips and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Philips could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Philips has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Philips must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

* * Hereafter throughout this manual, Philips Consumer Electronics Company will be referred to as Philips.

WARNING

Critical components having special safety characteristics are identified with a ⚠ by the Ref. No. in the parts list and enclosed within a broken line* (where several critical components are grouped in one area) along with the safety symbol ⚠ on the schematics or exploded views.

Use of substitute replacement parts which do not have the same specified safety characteristics may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from Philips. Philips assumes no liability, express or implied, arising out of any unauthorized modification of design.
Servicer assumes all liability.

* Broken Line ▬ ▪ ▬ ▪ ▬ ▪

FOR PRODUCTS CONTAINING LASER :
DANGER- Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.
CAUTION- Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
CAUTION- The use of optical instruments with this product will increase eye hazard.

TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT,USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS,WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE MANUAL.

Hex Data of DDC1/2B (17B2302Q/00C)

```
****************************************************************
                    CM2317BM.chk
****************************************************************

Vendor/Product Identification
        ID Manufacturer Name         : PHL
        ID Product Code              : b17b
        ID Serial Number             : 12345
        Week of Manufacture          : 2
        Year of Manufacture          : 1998

EDID Version, Revision
        Version                      : 1
        Revision                     : 1

Basic Display Parameters/Features
        Video Input Definition       : Analog Video Input
                                       0.700V/0.300V (1.00Vpp)
                                       without Blank-to-Black Setup
                                       Separate Sync
                                       Composite Sync
                                       Sync on Green
                                       no Serration required

        Maximum H Image Size         : 32 cm
        Maximum V Image Size         : 24 cm

        Display Transfer Characteristic: 3.000
                (gamma)

        Feature Support (DPMS)       : Standby
                                       Suspend
                                       Active Off
                                       RGB color display

Color Characteristics
        Red   X coordinate           : 0.635
        Red   Y coordinate           : 0.333
        Green X coordinate           : 0.285
        Green Y coordinate           : 0.605
        Blue  X coordinate           : 0.152
        Blue  Y coordinate           : 0.068
        White X coordinate           : 0.281
        White Y coordinate           : 0.311

Established Timings
        Established Timings I        : 720 x 400 @70Hz (VGA,IBM)
                                       640 x 480 @60Hz (VGA,IBM)
                                       640 x 480 @75Hz (VESA)

        Established timings II       : 800 x 600 @75Hz (VESA)
                                       1024 x 768 @75Hz (VESA)
                                       1280 x 1024 @75Hz (VESA)

        Manufacturer's timings       :

Standard Timing Identification #1
        Horizontal active pixels     : 640
        Aspect Ratio                 : 4:3
        Refresh Rate                 : 85

Standard Timing Identification #2
        Horizontal active pixels     : 800
        Aspect Ratio                 : 4:3
        Refresh Rate                 : 85

Standard Timing Identification #3
        Horizontal active pixels     : 1024
        Aspect Ratio                 : 4:3
        Refresh Rate                 : 85

Standard Timing Identification #4
        Horizontal active pixels     : 1280
        Aspect Ratio                 : 4:3
```

```
        Refresh Rate                 : 85

Detailed Timing #1
        Pixel Clock (MHz)            : 36.000
        H Active (pixels)            : 640
        H Blanking (pixels)          : 192
        V Active (lines)             : 480
        V Blanking (lines)           : 29
        H Sync Offset (F Porch) (pixels): 56
        H Sync Pulse Width (pixels)  : 56
        V Sync Offset (F Porch) (lines): 1
        V Sync Pulse Width (lines)   : 3
        H Image Size (mm)            : 306
        V Image Size (mm)            : 230
        H Border (pixels)            : 0
        V Border (lines)             : 0
        Flags                        : Non-interlaced
                                       Normal Display, No stereo
                                       Digital Seperate Sync
                                       Negative V Sync
                                       Negative H Sync

Detailed Timing #2
        Pixel Clock (MHz)            : 56.250
        H Active (pixels)            : 800
        H Blanking (pixels)          : 248
        V Active (lines)             : 600
        V Blanking (lines)           : 31
        H Sync Offset (F Porch) (pixels): 32
        H Sync Pulse Width (pixels)  : 64
        V Sync Offset (F Porch) (lines): 1
        V Sync Pulse Width (lines)   : 3
        H Image Size (mm)            : 306
        V Image Size (mm)            : 230
        H Border (pixels)            : 0
        V Border (lines)             : 0
        Flags                        : Non-interlaced
                                       Normal Display, No stereo
                                       Digital Seperate Sync
                                       Positive V Sync
                                       Positive H Sync

Detailed Timing #3
        Pixel Clock (MHz)            : 94.500
        H Active (pixels)            : 1024
        H Blanking (pixels)          : 352
        V Active (lines)             : 768
        V Blanking (lines)           : 40
        H Sync Offset (F Porch) (pixels): 48
        H Sync Pulse Width (pixels)  : 96
        V Sync Offset (F Porch) (lines): 1
        V Sync Pulse Width (lines)   : 3
        H Image Size (mm)            : 306
        V Image Size (mm)            : 230
        H Border (pixels)            : 0
        V Border (lines)             : 0
        Flags                        : Non-interlaced
                                       Normal Display, No stereo
                                       Digital Seperate Sync
                                       Positive V Sync
                                       Positive H Sync

Detailed Timing #4
        Pixel Clock (MHz)            : 148.500
        H Active (pixels)            : 1280
        H Blanking (pixels)          : 448
        V Active (lines)             : 960
        V Blanking (lines)           : 51
        H Sync Offset (F Porch) (pixels): 64
        H Sync Pulse Width (pixels)  : 160
        V Sync Offset (F Porch) (lines)           : 1
        V Sync Pulse Width (lines)   : 3
        H Image Size (mm)            : 306
        V Image Size (mm)            : 230
        H Border (pixels)            : 0
```

Hex Data of DDC1/2B (17B2302Q/00C)

```
        V Border (lines)           : 0
        Flags                      : Non-interlaced
                                     Normal Display, No stereo
                                     Digital Seperate Sync
                                     Positive V Sync
                                     Positive H Sync

Extension Flag                     : 0

Check sum                          : 8e(hex)
```

For MEC CRT

```
 0:00    1:ff    2:ff    3:ff    4:ff    5:ff    6:ff    7:00
 8:41    9:0c   10:7b   11:b1   12:39   13:30   14:00   15:00
16:02   17:08   18:01   19:01   20:0e   21:20   22:18   23:c8
24:e8   25:90   26:22   27:a2   28:55   29:49   30:9b   31:27
32:11   33:48   34:4f   35:a0   36:43   37:00   38:31   39:59
40:45   41:59   42:61   43:59   44:81   45:59   46:01   47:01
48:01   49:01   50:01   51:01   52:01   53:01   54:10   55:0e
56:80   57:c0   58:20   59:e0   60:1d   61:10   62:38   63:38
64:13   65:00   66:32   67:e6   68:10   69:00   70:00   71:18
72:f9   73:15   74:20   75:f8   76:30   77:58   78:1f   79:20
80:20   81:40   82:13   83:00   84:32   85:e6   86:10   87:00
88:00   89:1e   90:ea   91:24   92:00   93:60   94:41   95:00
96:28   97:30   98:30   99:60  100:13  101:00  102:32  103:e6
104:10  105:00  106:00  107:1e  108:02  109:3a  110:00  111:c0
112:51  113:c0  114:33  115:30  116:40  117:a0  118:13  119:00
120:32  121:e6  122:10  123:00  124:00  125:1e  126:00  127:92
```

a: Service DDC Kit

DDC Module (DDC cable), Part number = 4822 320 12004
DDCV2N.EXE software (3.5" disk), Part number = 4822 711 00024

b: Please refer to Service Information 4822 727 21995 for using the Service DDC Kit.

Electrical Adjustments

0. General

When carry-out the electrical settings in many cases a video signal must be applied to the monitor. A computer with :

- ATI GPT-1600 (4822 397 10065), Mach 64 (up to 107kHz)

are used as the video signal source. The signal patterns are selected from the "service test software" package, see user guide 4822 727 21046 (GPT-1600).

0.1 This monitor has 13 factory-preset modes as below.

640 x 400 31.5 kHz/70 Hz
640 x 480 31.5 kHz/60 Hz
640 x 480 37.5 kHz/75 Hz
640 x 480 43.0 kHz/85 Hz
800 x 600 37.9 KHz/60Hz
800 x 600 46.9 kHz/75Hz
800 x 600 53.6 kHz/85 Hz
1024 x 768 48.0 kHz/60 Hz
1024 x 768 60.0 kHz/75Hz
1024 x 768 68.7 kHz/85 Hz
1280 x 1024 64.0 kHz/60Hz
1280 x 1024 80.0 kHz/75Hz
1280 x 960 85.9 kHz/85 Hz

0.2 With normal VGA card:
If not using the ATI card during repair or alignment, The service engineer also can use this service test software adapting with normal standard VGA adaptor and using standard VGA mode 640 x 480, 31.5 kHz/60 Hz (only) as signal source.

0.3 AC/DC Measurement:
The measurements for AC waveform and DC figure is based on 640 x 480 31.5 kHz/60 Hz resolution mode with test pattern "gray scale".
Power input: 110V AC

1. B+ supply voltage (3165) 78Vdc

- Apply a video signal in the 800 x 600 with 46.9 kHz/75Hz mode.
- Select the "cross-hatch" pattern.
- Set the brightness control and the contrast control to the minimum position.
- Pre-set trimming potentiometer 3165(+) and 3661(EHT) in mid-position.
- Set Vg2 (screen) to fully Counter-clockwise (zero beamcurrent).
- Connect a dc voltmeter between the joint of capacitor 2154 and ground (common ground).
- Set the B+ trimming potentiometer 3165 so that the reading on the dc voltmeter is 78 V +/- 0.2 Vdc.

2. High-voltage EHT (3661)

- Apply a video signal in the 800 * 600 with 46.9 kHz/75Hz mode.
- Select the "cross-hatch" pattern.
- Set the brightness control and the contrast control to the minimum position.
- Turn off the power.
- Connect a "high-voltage voltmeter" between the high-voltage connection of the picture tube and earth.
- Turn on the power.
- Set the EHT trimming potentiometer 3661 so that the "high-voltage voltmeter" reads 25.0 kV +/- 0.2 kV .

- Turn off the power.
- Remove the "high-voltage voltmeter" from the picture tube.
- Turn on the power again.
- Remove the "high-voltage voltmeter" from the picture tube.
- Turn on the power again.

3. Monitor the following auxiliary voltages.

SOURCE ACROSS C2158 + 12.0V +/- 1.0VDC (Audio).
SOURCE ACROSS C2160 + 12.5V +/- 0.3VDC.
SOURCE ACROSS C2156 - 6.3 V+/- 0.2VDC.
SOURCE ACROSS C2152 + 191.0V +/- 1.5VDC.
SOURCE ACROSS C2154 + 78.0 V +/- 0.2VDC.

4. General conditions for alignment

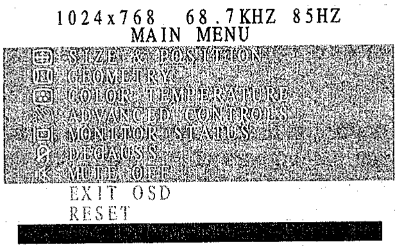
4.1 During all alignments, supply a distortion free AC mains voltage to set via an isolating transformer with low internal impedance.
4.2 Align in pre-warmed condition, at least 30 minutes warm-up with nominal picture brightness.
4.3 Purity, geometry and subsequent alignments should be carried out in magnetic cage with correct magnetic field.

Northern hemisphere : H=0, V=450 mG, Z=0
Southern hemisphere : H=0, V=-450 mG, Z=0
Equatorial Support : H=0, V=0 mG, Z=0

4.4 All voltages are to be measured or applied with respect to ground.
Note: Do not use heatsink as ground.
4.5 Adjust function controls " ⟳ " to center position except for contrast control which should be set to MAX.
4.6 Apply a video signal in the 1280 x 1024 with 64kHz/60Hz mode, select cross hatch pattern, set the Brightness for visible raster, adjust H-size for 340mm (19" monotor)/300mm (17" monitor) "raster width", adjust R3551 for Horizontal raster center.

5. To access factory mode:

- Turn off monitor (don't turn off PC)
- Hold " ☼ " and " ◑ " simultaneously on the front control panel , then press " ⏻ ", wait till the OSD menu with characters " factory mode (below OSD menu)" comes on the screen of monitor.



- If OSD menu disappears on the screen of monitor, press " ▣ " again (anytime), then the OSD menu comes on the screen again.
- using " ⟳ " : to select OSD menu.
: to increase or decrease the setting.

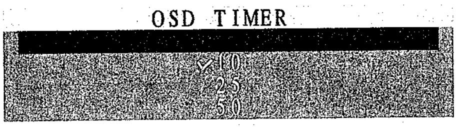
- Using " ▣ " to confirm the selection.

5.1. To leave factory mode

* After alignment of factory mode, turn off monitor (if you do not turn off monitor, the OSD menu is always at the factory mode), then turn on monitor again (at this moment, the OSD menu goes back to user mode).

6. OSD TIMER (During alignment)

During alignment, please use the "OSD TIMER" to keep OSD menu on screen.


OSD TIMER
✓10
25
50

TIMER Set OSD display time.

Warning and Notes

Warnings

1. Safety regulations require that the unit should be returned in its original condition and that components identical to the original components are used. The safety components are indicated by the symbol ⚠ .

2. In order to prevent damage to ICs and transistors, all high-voltage flash-overs must be avoided. In order to prevent damage to the picture tube, the method shown in Fig. 1 should be used to discharge the picture tube. Use a high-voltage probe and a multimeter (position DC-V). Discharge until the meter reading is **0 V** (after approximately 30 seconds).

3. **ESD** ⚠
All ICs and many other semiconductors are sensitive to electrostatic discharges (ESD). Careless handling during repair can drastically shorten their life. Make sure that during repair you are connected by a pulse band with resistance to the same potential as the ground of the unit. Keep components and tools also at this same potential.

4. When repairing a unit, always connect it to the AC Power voltage via an isolating transformer.

5. Be careful when taking measurements in the high-voltage section and on the picture tube panel.

6. It is recommended that saferty goggles be worn when replacing the picture tube.

7. When making adjustments,use plastic rather than metal tools. This will prevent any short-circuit or the danger of a circuit becoming unstable.

8. Never replace modules or other components while the unit is switched on.

9. Together with the defleciton unit, the picture tube is used as an integrated unit. Adjustment of this unit during repair is not recommended.

10. After repair, the wiring should be fastened in place with the cable clamps.

Notes

1. The direct voltages and waveforms are average voltages. They have been measured using the Service test software and under the following conditions :
   - Mode : 1024 * 768 (56.5kHz / 70Hz)
   - Signal pattern : grey scale
   - Adjust brightness and contrast control for the mechanical mid-position (click position)

2. The picture tube panel has printed spark gaps. Each spark gap is connected between an electrode of the picture tube and the Aquadag coating.

3. The semiconductors indicated in the circuit diagram(s) and in the parts lists are completely interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.

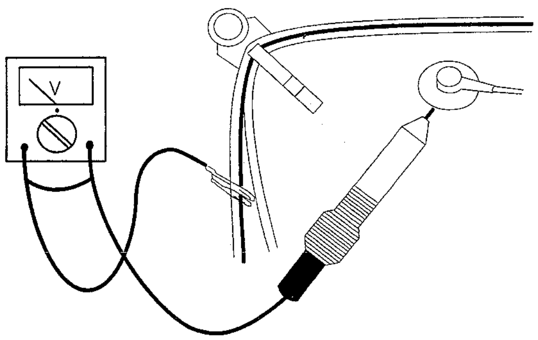


Fig.1

7. Alignment of Vg2 cut-off point, white tracking (OSD control)

Equipment : 1. Video Test Generator-801GC (Quantum Data)
2. Color-analyzer (Minolta CA-100)

VG2 [(screen), at the bottom of the L.O.T.].

- * Apply a video signal in the 800 x 600 with 46.9 kHz/75 Hz mode, select the "full white pattern" (sizes 306 x 230 mm).
- * Use color-analyzer (Minolta CA-100) to adjust cutoff and white uniformity.

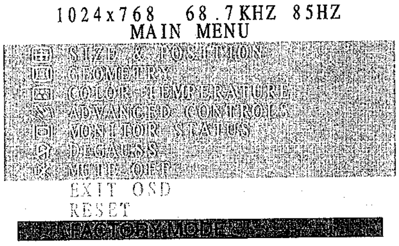
OSD R/G/B cut-off and R/G/B gain can be accessed, with initial data:

9300°K
R cutoff = 25%, R gain = 65% (I^2C)
G cutoff = 25%, G gain = 65% (I^2C)
B cutoff = 25%, B gain = 65% (I^2C)

6500°K
R cutoff = 25%, R gain = 55% (I^2C)
G cutoff = 25%, G gain = 55% (I^2C)
B cutoff = 25%, B gain = 55% (I^2C)

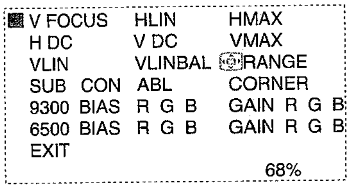
Brightness = 50%, Sub-Contrast = 85%, ABL = 50% (I^2C)

Step 1: To select the character "FACTORY MODE" as shown in Fig. 2.1, press " ▣ " to access the OSD menu for R/G/B gain & cutoff as shown in Fig. 2.2.
Step 2: Press " ▣ " for function selection as shown in Fig. 2.3.
Step 3: Use " ↻ " to increase or decrease the value as shown in Fig. 2.3.



```
1024x768   68.7KHZ  85HZ
        MAIN MENU
  SIZE & POSITION
  GEOMETRY
  COLOR TEMPERATURE
  ADVANCED CONTROLS
  MONITOR STATUS
  DEGAUSS
  MUTE OFF
  EXIT OSD
  RESET
  FACTORY MODE
```

Fig. 2.1

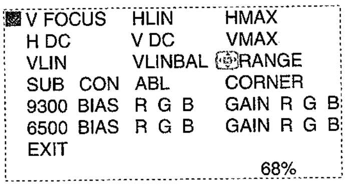


```
■ V FOCUS   HLIN      HMAX
  H DC      V DC      VMAX
  VLIN      VLINBAL   RANGE
  SUB  CON  ABL       CORNER
  9300 BIAS R G B     GAIN R G B
  6500 BIAS R G B     GAIN R G B
  EXIT
                          68%
```

Fig. 2.2

V FOCUS : Vertical Focus
HLIN : Horizontal Linearity
HMAX : Horizontal size maximum
VMAX : Vertical size maximum
H DC : Horizontal DC (raster) Shift
V DC : Vertical DC (raster) Shift
V LIN : Vertical Linearity
VLINBAL : Vertical Linearity Balance
RANGE : Zoom range
SUB CON : Sub Contrast
ABL : Auto Beam Limit
CORNER : Corner Correction
BIAS R G B : R(red) G(green) B(blue) cutoff

Press " ▣ "



```
■ V FOCUS   HLIN      HMAX
  H DC      V DC      VMAX
  VLIN      VLINBAL   RANGE
  SUB  CON  ABL       CORNER
  9300 BIAS R G B     GAIN R G B
  6500 BIAS R G B     GAIN R G B
  EXIT
                          68%
```

Fig. 2.3

7.1 Connect the video input, set brightness control at 50% and contrast at minimum position (OSD), Vg2 at Minimum (counter clockwise, and ABL (OSD) at 50% position.
Slowly increase Vg2 voltage until light output is at 0.1 Ft-L +/- 0.01Ft-L (Y=0.1 Ft-L, on the screen of CA-100) .

7.2 (The screen of monitor is dark now)
: Press " ▣ " to show the OSD menu as shown in Fig. 2.1.
: Select the character "FACTORY MODE" to access the R/G/B adjustment as shown in Fig. 2.2 and Fig. 2.3.
: Adjust the cutoff of R/G/B to get 9300K (x=0.281 +/- 0.015, y=0.311 +/- 0.015), and brightness output at 0.07 +/- 0.01 Ft-L (Y=0.07Ft-L).

7.3 : Press " ◑ " to set contrast at maximum (100%).
: Adjust gain of R/G/B to get 9300K (x=0.281 +/- 0.015, y=0.311 +/-0.015, don't care about the Y value)

7.4 Apply a small white square 10 x 10 cm pattern, brightness set to center (50%), and contrast at maximum (100%), adjust Sub-contrast control (OSD) to reach 50 +/- 1 Ft-L.

7.5 Apply full white pattern at 9300K, adjust ABL (OSD) to reach 30+/- 1 Ft-L (contrast at maximum 100%, brightness at center 50%).

7.6 : Select the 6500K colour temperature as shown in Fig. 2.2.
: Adjust the R/G/B cutoff and R/G/B gain as shown in procedure 7.2~7.3 to get R/G/B cutoff x= 0.313 +/- 0.015
y= 0.329 +/- 0.015

R/G/B gain x= 0.313 +/- 0.015
y= 0.329 +/- 0.015
Y= 45 +/- 1 Ft-L

8. Picture geometry setting (factory pre-set modes)

- Apply a video signal with cross-hatch pattern.
- Apply a video signal in the 1024 x 768 with 46.9 kHz/75 Hz mode.
- Set brightness and contrast controls to their center positions (OSD control).

8.1 Horizontal geometry (OSD control)
- Adjust the H-width to 306 mm
- Adjust the H-phase to center position.

8.2 Vertical geometry (OSD control)
- Adjust vertical size to 230 mm
- Adjust V-phase to center position.

8.3 Trapezoid distortion (OSD control)
- Adjust the trapezoid to get optimal vertical lines.

8.4 Pincushion (OSD control)
- Adjust the pincushion to get optimal vertical line.

Electrical Adjustments (Continued)

8.5 Parallelogram (OSD control)
- Adjust parallelogram so that vertical lines are vertical or symmetrically about the center vertical axis.

8.6 Unbalance-pin (OSD control)
- Adjust the unbalance-pin so that that vertical border lines are aligned symmetrically.

8.7 Rotation (OSD control)
- Adjust picture so that vertical tilt is less than +/- 0.5mm.

8.8 Store the preset results by selecting the "exit" (OSD control).

8.9 Repeat the procedure 8.1 to 8.8 until all the preset timings have been adjusted completely

9. Focus adjustment

: Apply a video signal in the 1024 x 768 with 60 kHz/75 Hz mode.
: Select " @ " pattern.
: Set the brightness at center (50%) and the contrast at maximum (100%).
: Adjust focus potentiometers (top of L.O.T.) Focus 1 for horizontal focus and Focus 2 for vertical focus so that the picture at 2/3 of the diagonal lines (from center to four corners) of the displayed screen is as sharp as possible.

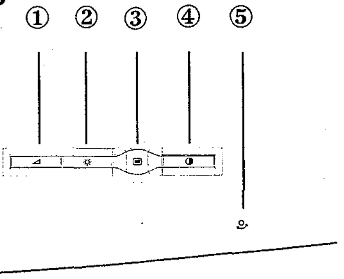
10. Loading DDC code

The DDC HEX data should be written into the DDC IC (7331) by EEPROM writer or equivalent method.

a: Service DDC Kit
DDC Module (DDC cable), Part number = 4822 320 12004
DDCV2N.EXE software (3.5" disk), Part number = 4822 711 00024
b: Please refer to Service information 4822 727 21995 for using the Service DDC Kit.

Quick R

Front Controls

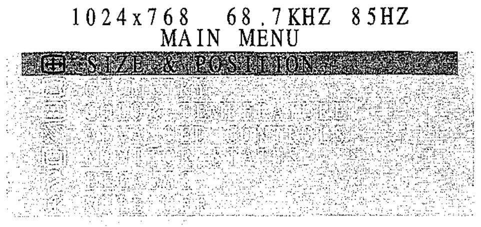


Descriptions of knobs and keypads on front control panel

① ⊿ Adjust volume of internal speakers and earphone output.
② ☼ Adjust brightness of the display.
③ ▣ To access OSD menu.
④ ◑ Adjust contrast of the display.
⑤ ⚲ To scroll the OSD function and adjust the scale of the selected *function.*

To access factory mode:

- Turn off monitor (don't turn off PC)
- Press " ☼ " and " ◑ " and "power knob of Monitor" simultaneously, until the VIDEO (pattern) comes on the screen of monitor.
- After that, press " ▣ ", the OSD main menu with characters "FACTORY MODE"(below OSD menu) come on the screen as below.



1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION

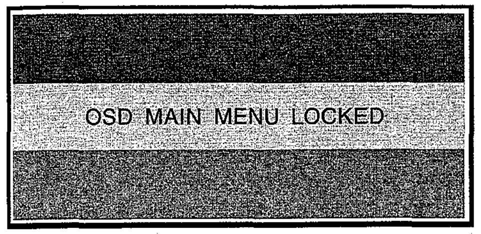
FACTORY MODE

To leave factory mode:

- Turn off monitor (don't turn off PC)
- Turn on monitor (don't turn off PC)
- Then return to user mode

To lock (disable) OSD function:

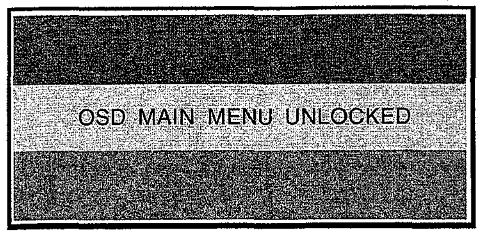
- Press " ▣ " for 10 minutes to lock the OSD function. *OSD comes on the screen as below.*



OSD MAIN MENU LOCKED

To unlock (enable) OSD function:

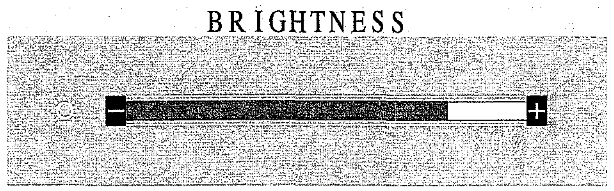
- Press " ▣ " for 10 minutes again to unlock the OSD function. OSD comes on the screen as below.



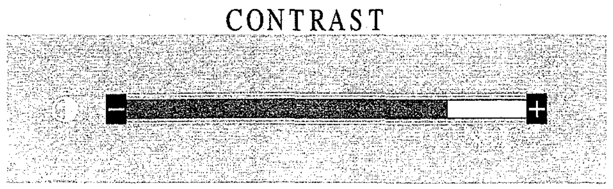
OSD MAIN MENU UNLOCKED

First Level / **Second Level** / **Third Level**

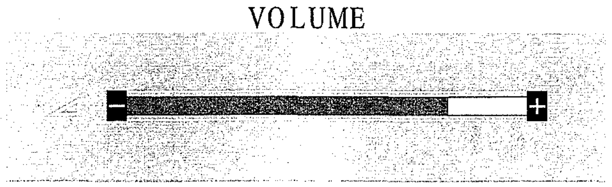
- SIZE & POSITION
  - ZOOM
  - HORIZONTAL POSITION
  - HORIZONTAL SIZE
  - VERTICAL POSITION
  - VERTICAL SIZE
  - SAVE & RETURN TO MAIN MENU
  - RECALL
- GEOMETRY
  - ROTATION
  - PINCUSHION
  - TRAPEZOID
  - BALANCED PINCUSHION
  - PARALLELOGRAM
  - SAVE & RETURN TO MAIN MENU
  - RECALL
- COLOR TEMPERATURE
  - 9300°
  - 6500°
  - USER 1
    - RED (RED COLOR)
    - GREEN (GREEN COLOR)
    - BLUE (BLUE COLOR)
    - SAVE & RETURN TO MAIN MENU
    - RECALL
  - USER 2
    - RED (RED COLOR)
    - GREEN (GREEN COLOR)
    - BLUE (BLUE COLOR)
    - SAVE & RETURN TO MAIN MENU
    - RECALL
  - SAVE & RETURN TO MAIN MENU
  - RECALL
- ADVANCED CONTROLS
  - POWER SAVING ON / OFF
  - LANGUAGES
    - ENGLISH
    - DEUTSCH
    - FRANÇAIS
    - ITALIANO
    - ESPAÑOL
  - DDC1/2B ON / OFF
  - OSD TIMER
    - 5
    - 10
    - 25
    - 50
  - MOIRÉ
    - H
    - V
    - SAVE & RETURN TO MAIN MENU
    - CANCEL
  - SYNC INPUT SELECT
    - TTL SYNC
    - SYNC ON GREEN
    - SAVE & RETURN TO MAIN MENU
    - RECALL
  - SAVE & RETURN TO MAIN MENU
  - RECALL
- MONITOR STATUS
  - PRESET MODE
  - NEW MODE
- DEGAUSS
- MUTE OFF / ON
- EXIT OSD
- RESET
  - NO
  - YES



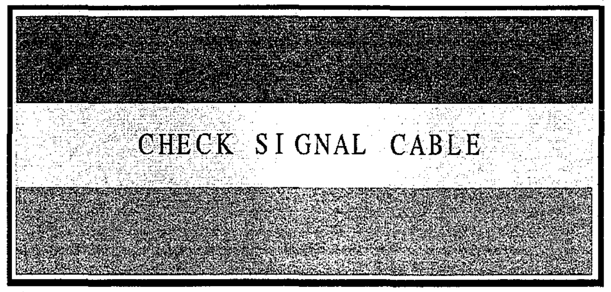
BRIGHTNESS



CONTRAST

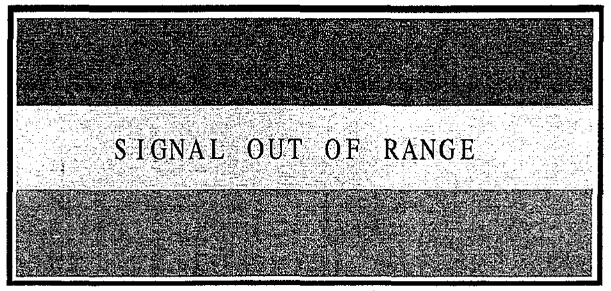


VOLUME



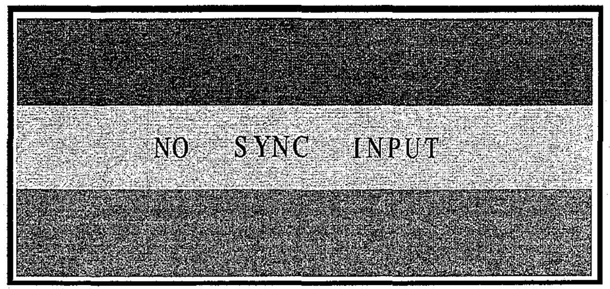
CHECK SIGNAL CABLE

Remark: (SELF TEST : for the pin 5 of Interface cable)



SIGNAL OUT OF RANGE

Remark: Horizontal Frequency out of range



NO SYNC INPUT

Remark: 1. Interface cable do not connect to computer when power on.
2. Interface cable without pin5 & there is no sync. input, or interface cable disconnect.

Quick Reference for OSD Adjustment

Third Level

MENU

MENU
- RED (RED COLOR)
- GREEN (GREEN COLOR)
- BLUE (BLUE COLOR)
- SAVE & RETURN TO MAIN MENU
- RECALL

- RED (RED COLOR)
- GREEN (GREEN COLOR)
- BLUE (BLUE COLOR)
- SAVE & RETURN TO MAIN MENU
- RECALL

)FF

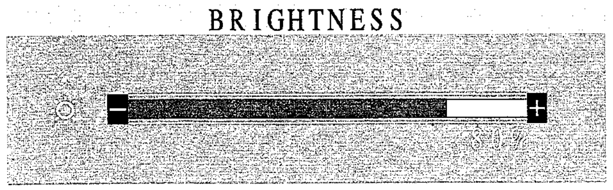
- ENGLISH
- DEUTSCH
- FRANÇAIS
- ITALIANO
- ESPAÑOL

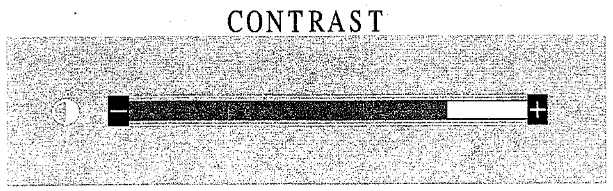
- 5
- 10
- 25
- 50

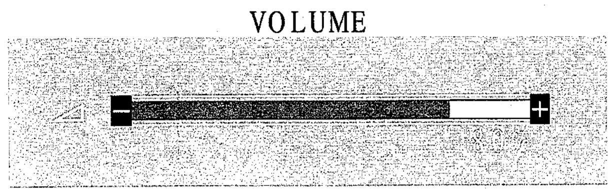
- H
- V
- SAVE & RETURN TO MAIN MENU
- CANCEL

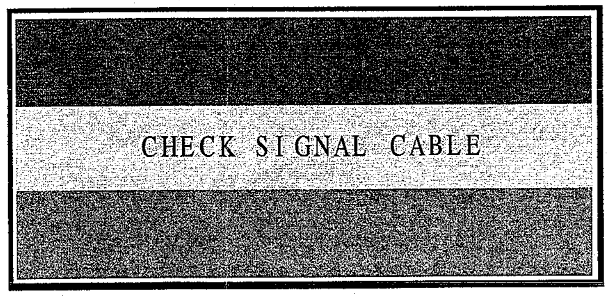
- TTL SYNC
- SYNC ON GREEN
- SAVE & RETURN TO MAIN MENU
- RECALL

AIN MENU

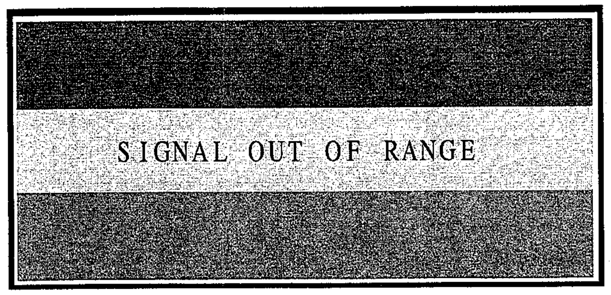

BRIGHTNESS



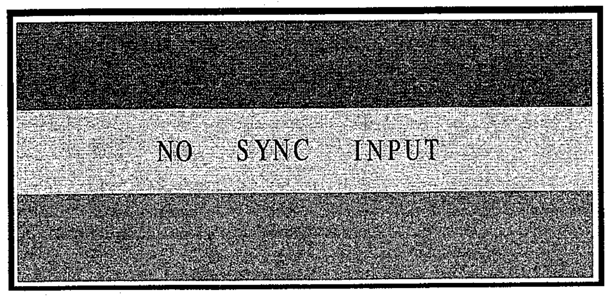



CHECK SIGNAL CABLE

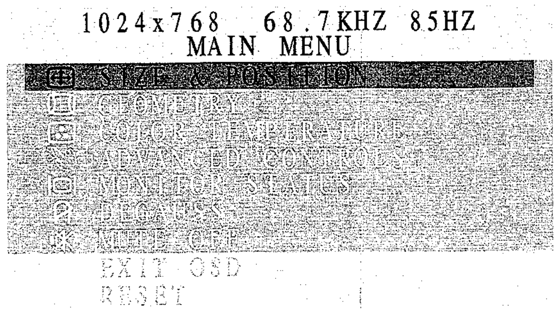
Remark: (SELF TEST : for the pin 5 of Interface cable)

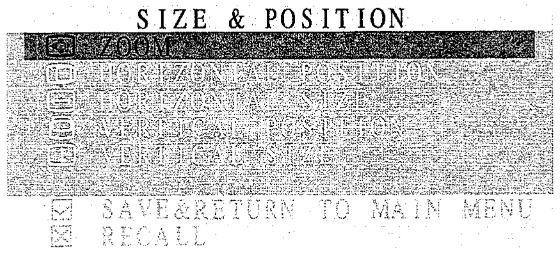

SIGNAL OUT OF RANGE

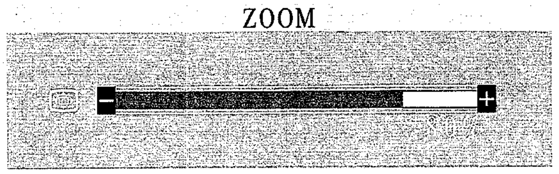
Remark: Horizontal Frequency out of range

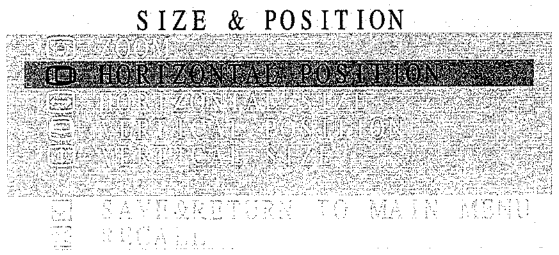

NO SYNC INPUT

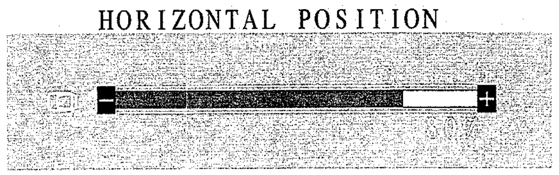
Remark:
1. Interface cable do not connect to computer when power on.
2. Interface cable without pin5 & there is no sync. input, or interface cable disconnect.

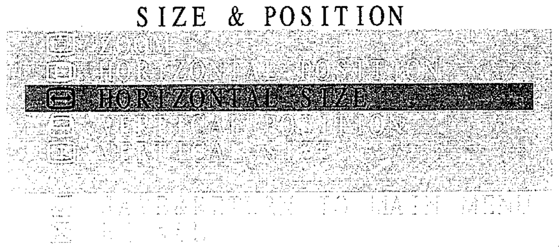

1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
MUTE OFF
EXIT OSD
RESET

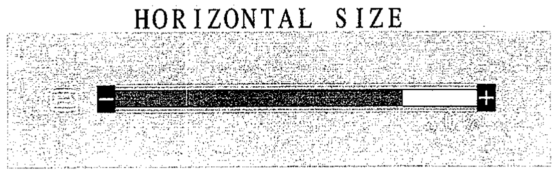

SIZE & POSITION
ZOOM
HORIZONTAL POSITION
HORIZONTAL SIZE
VERTICAL POSITION
VERTICAL SIZE
SAVE&RETURN TO MAIN MENU
RECALL

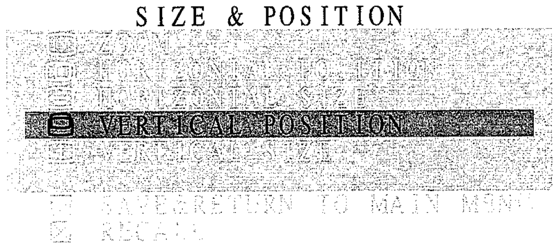


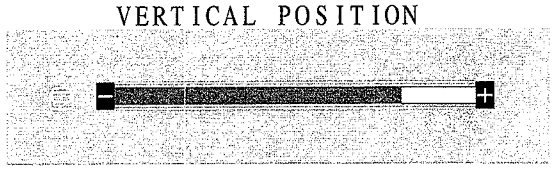

SIZE & POSITION
ZOOM
HORIZONTAL POSITION
HORIZONTAL SIZE
VERTICAL POSITION
VERTICAL SIZE
SAVE&RETURN TO MAIN MENU
RECALL

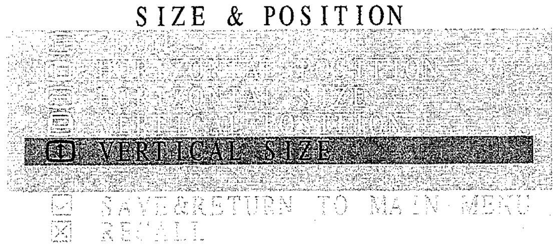

HORIZONTAL POSITION

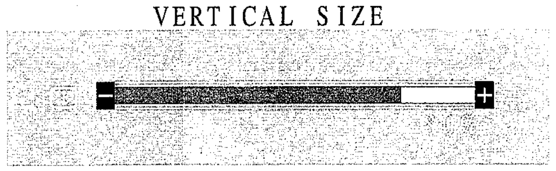

SIZE & POSITION
ZOOM
HORIZONTAL POSITION
HORIZONTAL SIZE
VERTICAL POSITION
VERTICAL SIZE
SAVE&RETURN TO MAIN MENU
RECALL

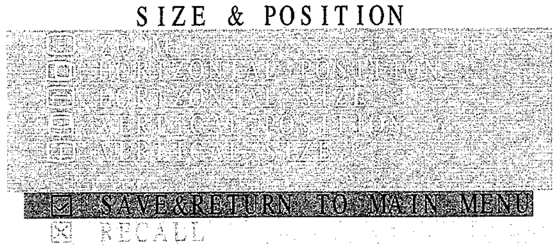

HORIZONTAL SIZE

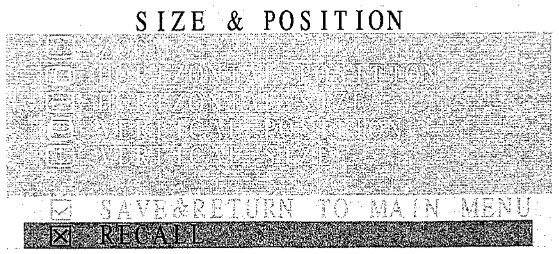

SIZE & POSITION
ZOOM
HORIZONTAL POSITION
HORIZONTAL SIZE
VERTICAL POSITION
VERTICAL SIZE
SAVE&RETURN TO MAIN MENU
RECALL


VERTICAL POSITION

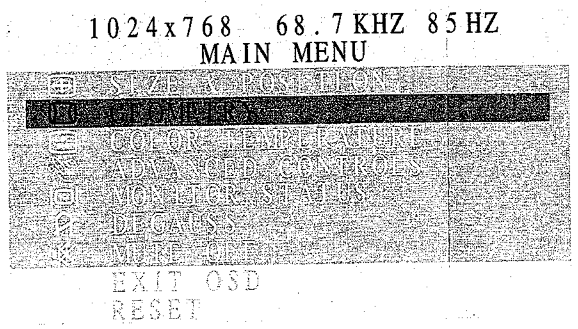

SIZE & POSITION
ZOOM
HORIZONTAL POSITION
HORIZONTAL SIZE
VERTICAL POSITION
VERTICAL SIZE
SAVE&RETURN TO MAIN MENU
RECALL

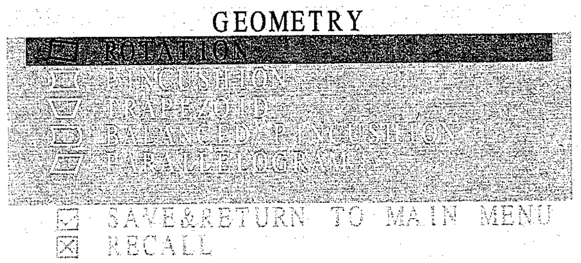

VERTICAL SIZE

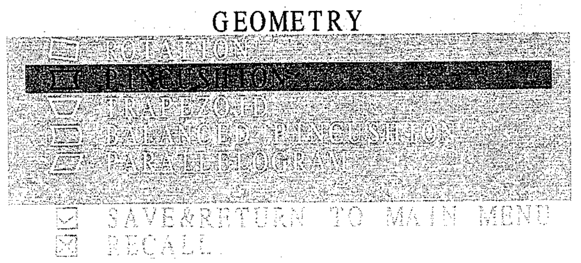

SIZE & POSITION
ZOOM
HORIZONTAL POSITION
HORIZONTAL SIZE
VERTICAL POSITION
VERTICAL SIZE
SAVE&RETURN TO MAIN MENU
RECALL

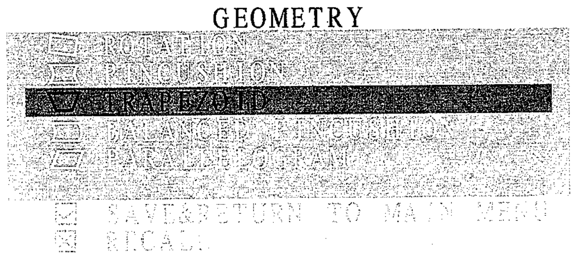

SIZE & POSITION
ZOOM
HORIZONTAL POSITION
HORIZONTAL SIZE
VERTICAL POSITION
VERTICAL SIZE
SAVE&RETURN TO MAIN MENU
RECALL

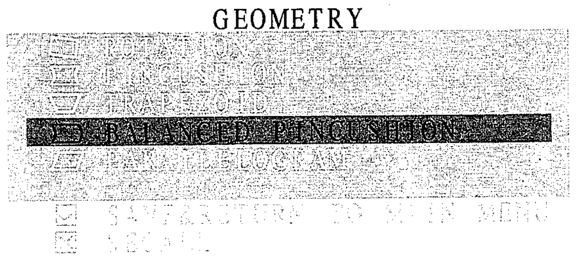
Quick Reference for OSD Adjustment (Continued)

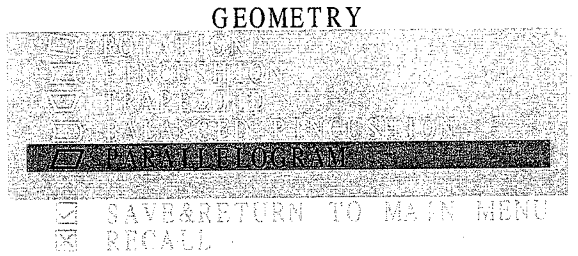

1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
MUTE OFF
EXIT OSD
RESET

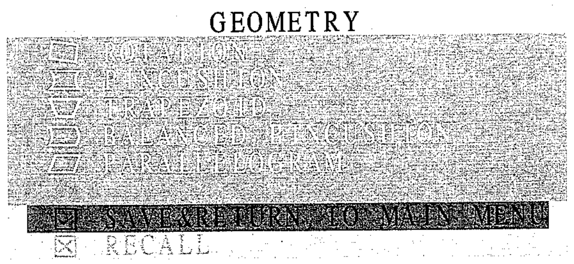

GEOMETRY
ROTATION
PINCUSHION
TRAPEZOID
BALANCED PINCUSHION
PARALLELOGRAM
☑ SAVE&RETURN TO MAIN MENU
☒ RECALL

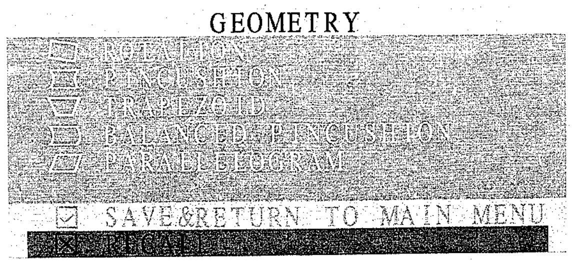

GEOMETRY
ROTATION
PINCUSHION
TRAPEZOID
BALANCED PINCUSHION
PARALLELOGRAM
☑ SAVE&RETURN TO MAIN MENU
☒ RECALL

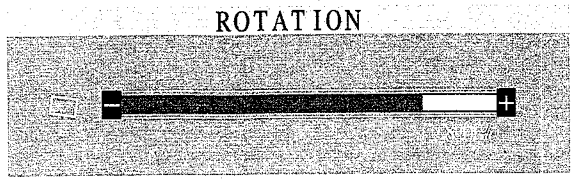

GEOMETRY
ROTATION
PINCUSHION
TRAPEZOID
BALANCED PINCUSHION
PARALLELOGRAM
☑ SAVE&RETURN TO MAIN MENU
☒ RECALL

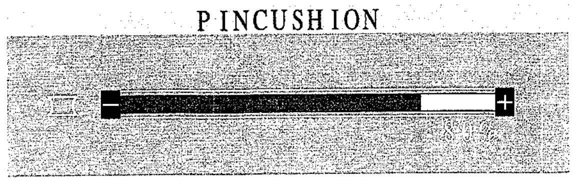

GEOMETRY
ROTATION
PINCUSHION
TRAPEZOID
BALANCED PINCUSHION
PARALLELOGRAM
☑ SAVE&RETURN TO MAIN MENU
☒ RECALL

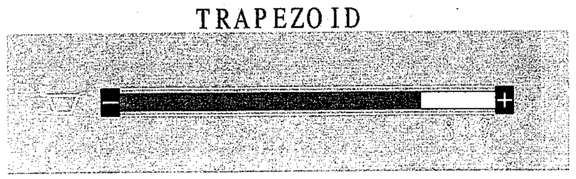

GEOMETRY
ROTATION
PINCUSHION
TRAPEZOID
BALANCED PINCUSHION
PARALLELOGRAM
☑ SAVE&RETURN TO MAIN MENU
☒ RECALL

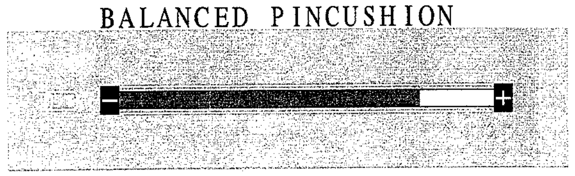

GEOMETRY
ROTATION
PINCUSHION
TRAPEZOID
BALANCED PINCUSHION
PARALLELOGRAM
☑ SAVE&RETURN TO MAIN MENU
☒ RECALL

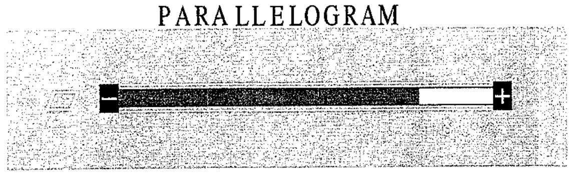

GEOMETRY
ROTATION
PINCUSHION
TRAPEZOID
BALANCED PINCUSHION
PARALLELOGRAM
☑ SAVE&RETURN TO MAIN MENU
☒ RECALL

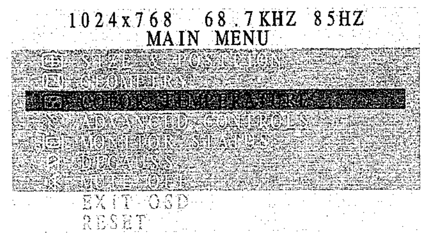


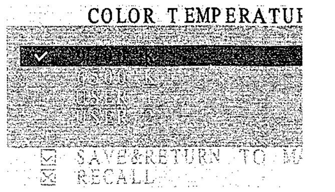

PINCUSHION
-
+

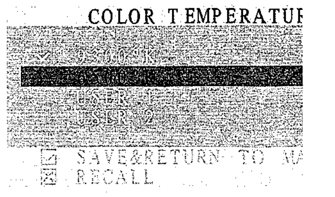


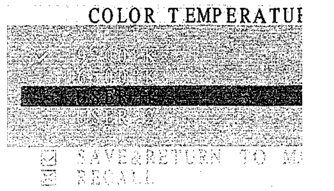

BALANCED PINCUSHION
-
+

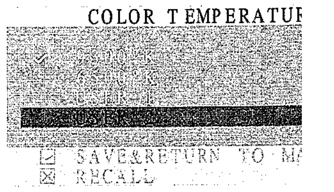

PARALLELOGRAM
-
+

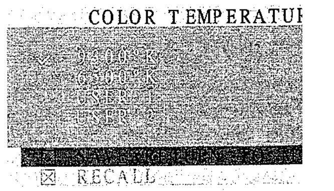

1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
MUTE OFF
EXIT OSD
RESET

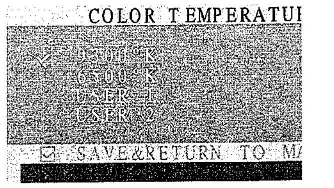

COLOR TEMPERATU
✓ 9300°K
6500°K
USER 1
USER 2
☑ SAVE&RETURN TO MA
☒ RECALL

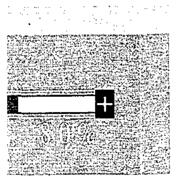

COLOR TEMPERATU
✓ 9300°K
6500°K
USER 1
USER 2
☑ SAVE&RETURN TO MA
☒ RECALL

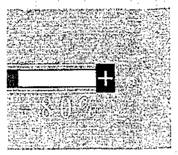

COLOR TEMPERATU
✓ 9300°K
6500°K
USER 1
USER 2
☑ SAVE&RETURN TO MA
☒ RECALL

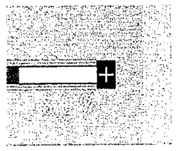

COLOR TEMPERATU
✓ 9300°K
6500°K
USER 1
USER 2
☑ SAVE&RETURN TO MA
☒ RECALL


COLOR TEMPERATU
✓ 9300°K
6500°K
USER 1
USER 2
☑ SAVE&RETURN TO MA
☒ RECALL

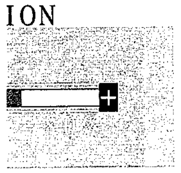

COLOR TEMPERATU
✓ 9300°K
6500°K
USER 1
USER 2
☑ SAVE&RETURN TO MA
RECALL

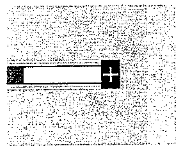


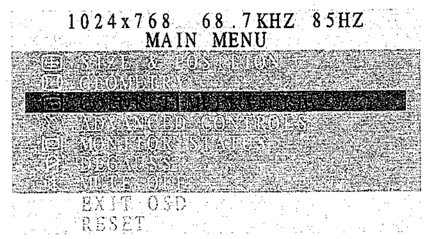




ION






1024x768 68.7KHZ 85HZ
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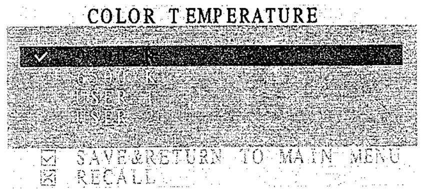
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
EXIT OSD
RESET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6500K
USER 1
USER 2
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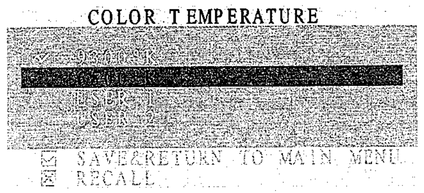
☒ RECALL


COLOR TEMPERATURE
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6500K
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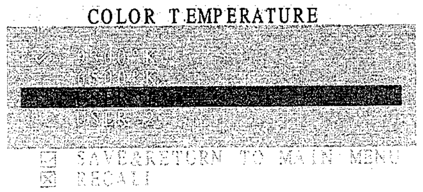
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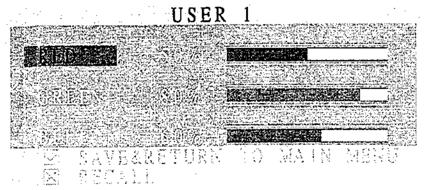
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GREEN
BLUE
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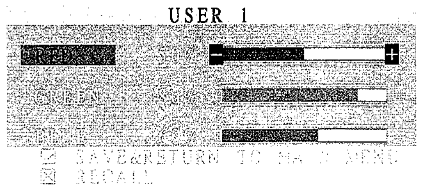
☒ RECALL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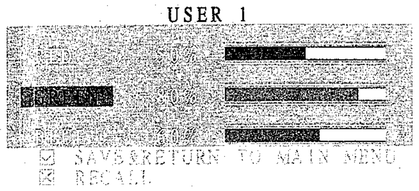
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BLUE
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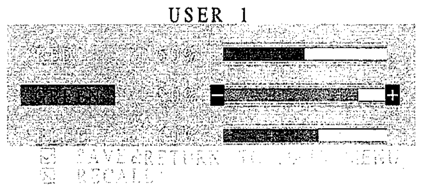
☒ RECALL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GREEN
BLUE
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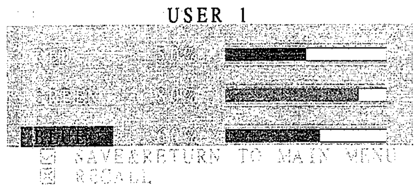
USER 1
RED
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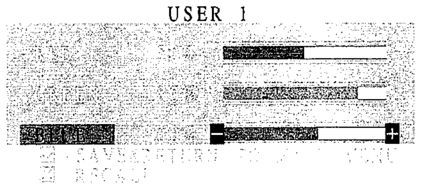
☒ RECALL


USER 1
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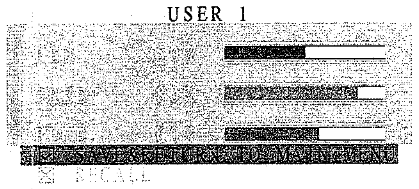
☒ RECALL


USER 1
RED
GREEN
BLUE
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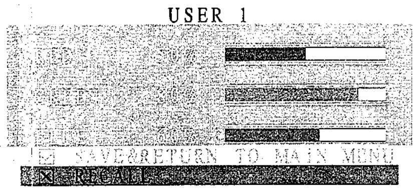
☒ RECALL


USER 1
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GREEN
BLUE
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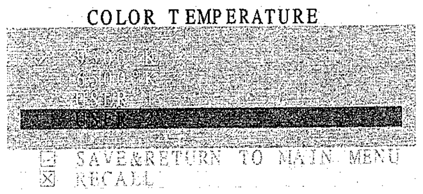
COLOR TEMPERATURE
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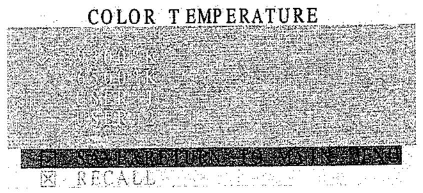
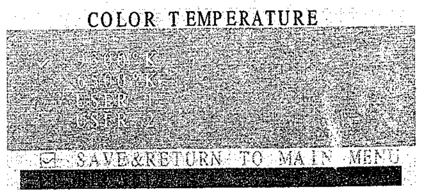
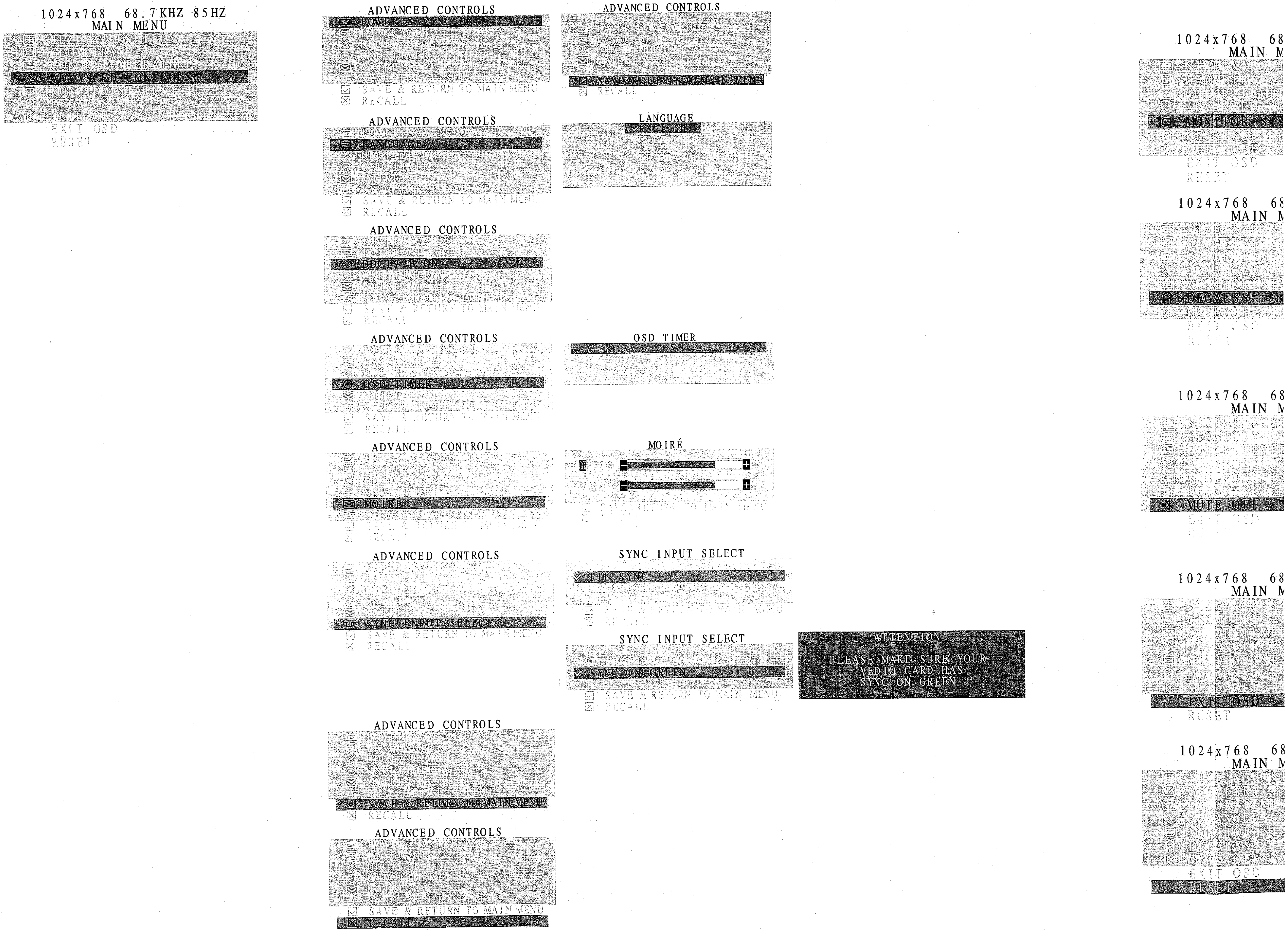
☒ RECALL


COLOR TEMPERATURE
SAVE&RETURN TO MAIN MENU
☒ RECALL


COLOR TEMPERATURE
☑ SAVE&RETURN TO MAIN MENU

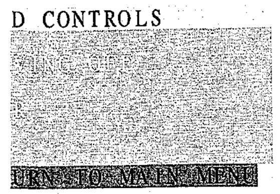
Quick Reference for OSD Adjustment (Continuec


1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
MUTE OFF
EXIT OSD
RESET
ADVANCED CONTROLS
POWER SAVING ON
LANGUAGE
DDC1/2B ON
OSD TIMER
MOIRE
SYNC INPUT SELECT
☑ SAVE & RETURN TO MAIN MENU
☒ RECALL
LANGUAGE
✓ENGLISH
OSD TIMER
5
MOIRÉ
SYNC INPUT SELECT
✓ TTL SYNC
✓ SYNC ON GREEN
1024x768 68
MAIN M
MONITOR ST
DEGAUSS
MUTE OFF
EXIT OSD
RESET

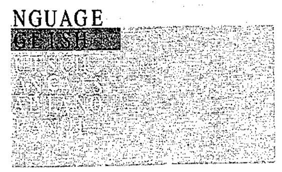
ATTENTION

PLEASE MAKE SURE YOUR
VEDIO CARD HAS
SYNC ON GREEN

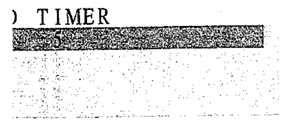
Quick Reference for OSD Adjustment (Continued)

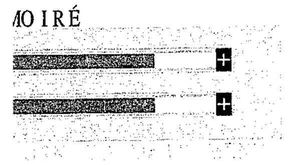

D CONTROLS

URN TO MAIN MENU


NGUAGE

GLISH


) TIMER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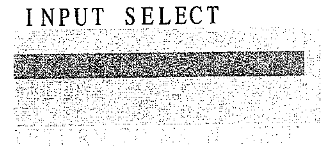
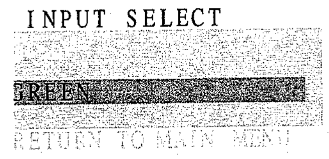
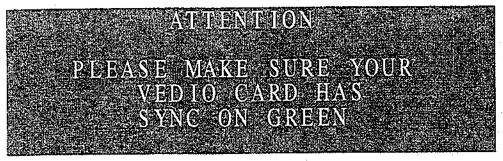

INPUT SELECT

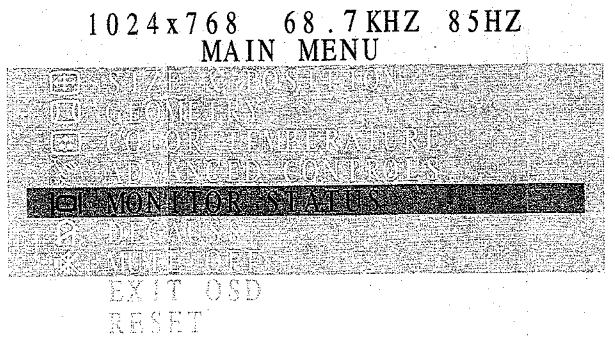

INPUT SELECT

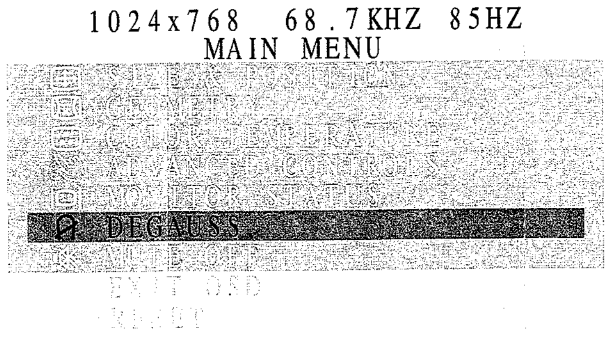
REEN

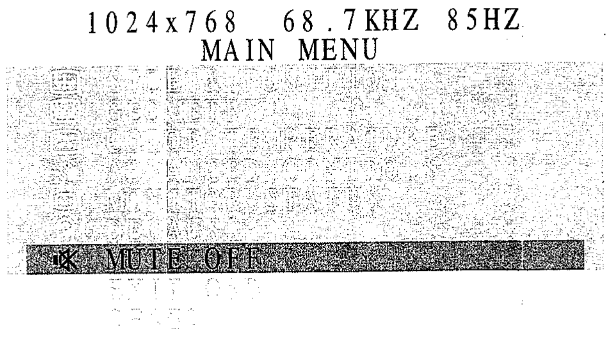
RETURN TO MAIN MENU

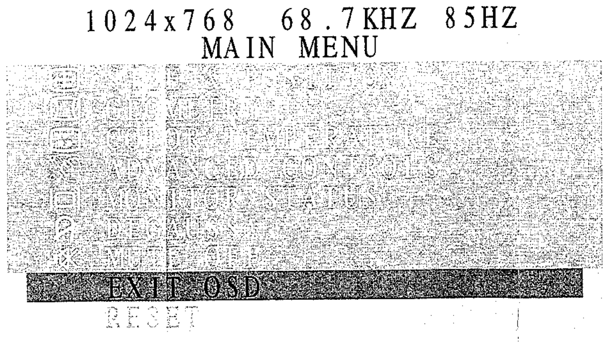

ATTENTION

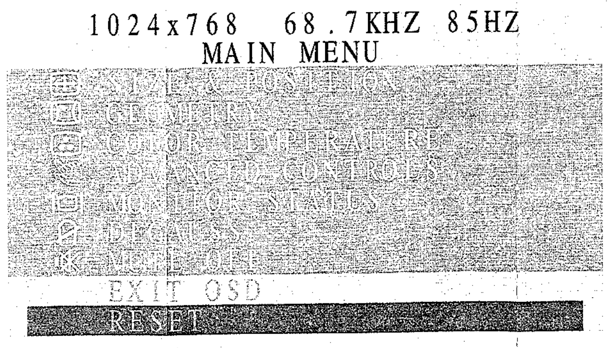
PLEASE MAKE SURE YOUR VEDIO CARD HAS SYNC ON GREEN


1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
MUTE OFF
EXIT OSD
RESET


1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
MUTE OFF
EXIT OSD
RESET


1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
MUTE OFF
EXIT OSD
RESET


1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
MUTE OFF
EXIT OSD
RESET


1024x768 68.7KHZ 85HZ
MAIN MENU
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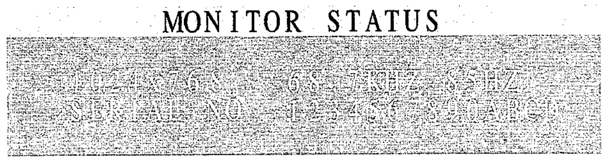
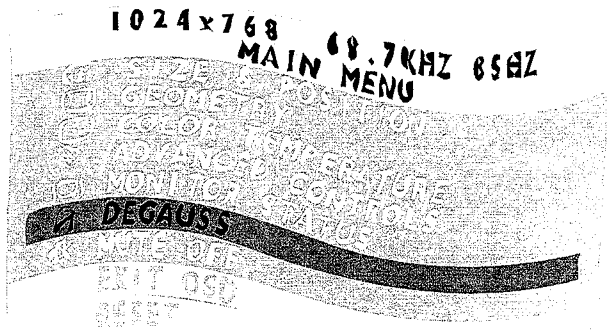
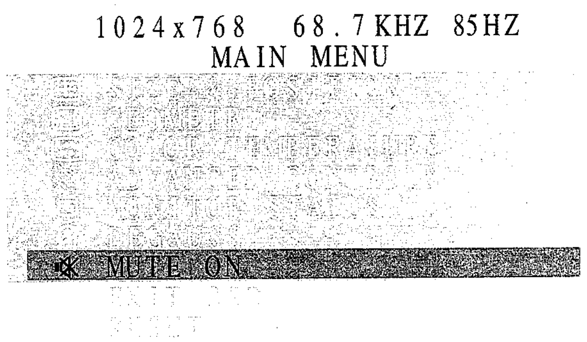
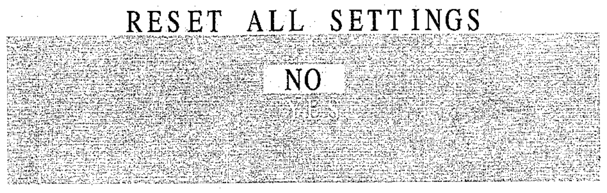
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
MUTE OFF
EXIT OSD
RESET

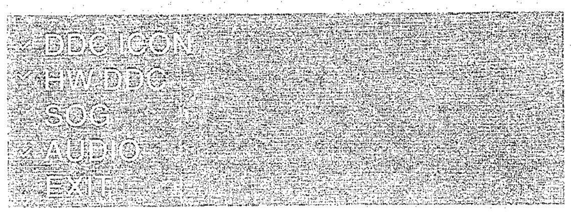

MONITOR STATUS
1024x768 68.7KHZ 85HZ
SERIAL NO 1234567890ABCD

Remark: (for USER MODE)


1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
MUTE OFF
EXIT OSD
RESET


1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
MUTE ON
EXIT OSD
RESET


RESET ALL SETTINGS
NO
YES


✓ DDC ICON
✓ HW DDC
SOG
✓ AUDIO
EXIT

Remark: (for FACTORY MODE)

DDC ICON:
If select " ✓ ", then DDC1/2B ON/OFF shows on the advanced controls.
Default setting is ON.

HW DDC (hardware DDC):
Always select " ✓ ".

SOG:
If select " ✓ ", then SYNC INPUT SELECT shows on the advanced controls for "TTL SYNC" or "SYNC ON GREEN" selection.

Mechanical Adjustments

0. Location of the panel
0.1 Main panel (1156)
0.2 Video panel (1157)
0.3 Power switch panel (1158)

1. General
To be able to perform measurements and repairs on the circuit boards, the monitor should placed in **Service Position (Fig. 3.1)** first:

How to remove the back cover of monitor:

There are 2 screws on the bottom of the monitor to fix the front cabinet and back cover of the monitor.

Step 1: Remove the "cable cover" as shown in Fig. 3.2.
Step 2: Turn the set to remove the 2 screws on the bottom side, as shown in Fig. 3.3 .
Step 3: Turn the set to its original position.
Step 4: Remove back cover,then see left side view as shown in Fig.3.4.
Step 5: Turn the set, then see right side view as shown in Fig.3.5.

Chassis :

After removing the back cover, you can see the inside the monitor with metal frame and metal shield.see top side view as shown in Fig.3.6.
- Remove 13 screws and cut away 6 wire ties for service position as Fig. 3.1.

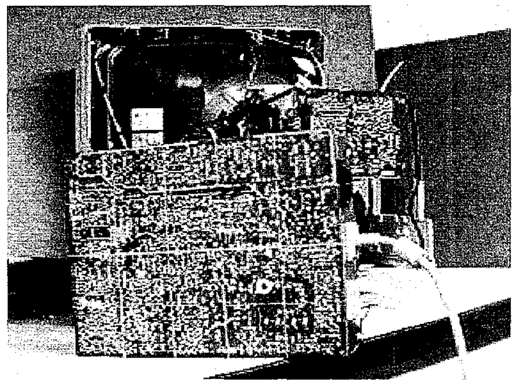
Video panel :
- Cut off 2 wire ties,after removing the metal frames, remove the metal shielding on rear side of Video panel for measurement.

Main panel :

After removing the metal frames,
- Disconnect "Video panel"
- Disconnect EHT cable (EHT cap)
- Disconnect 4 pin connector "M1401" (wire of YOKE, on Main panel)
- Disconnect 2 pin connector "M1112" (degaussing coil, on Main panel)
- Disconnect 1 pin connector "M1703" (on Video panel)
- Disconnect 5 pin connector "M1201" (on Main panel)
- Disconnect 6 pin connector "M1802" (on Main panel)
- Disconnect 2 pin connector "M1205" (on Main panel)
- Disconnect 4 pin connector "M1204" (on Main panel)
- Disconnect 4 pin connector "M1207" (on Main panel)
- *To slide out Main panel.*
- Connect all the connectors and panels for service position.

Service position :
Place monitor in service position as shown in Fig. 3.1

2. Repair instructions
After the service position is obtained, all the panel's copper trace sides may be accessed.



SERVICE POSITION Fig. 3.1

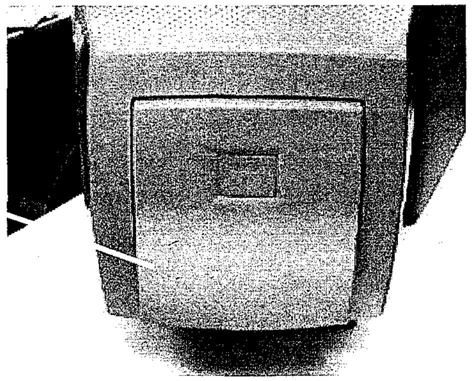


Fig. 3.2

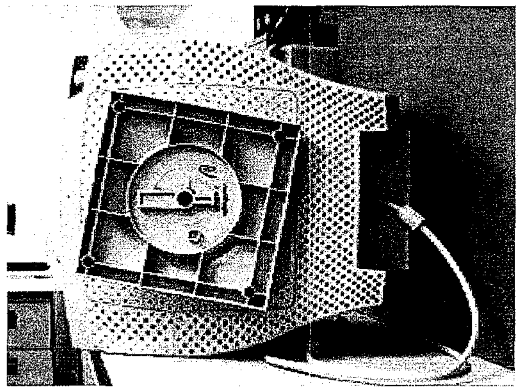


Fig. 3.3

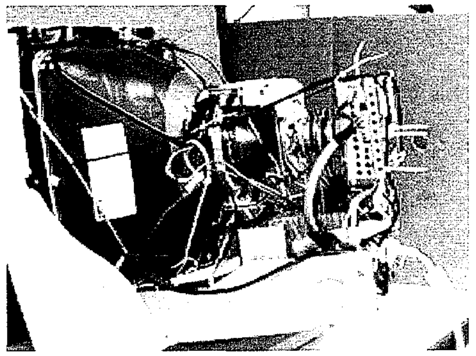


Fig. 3.4

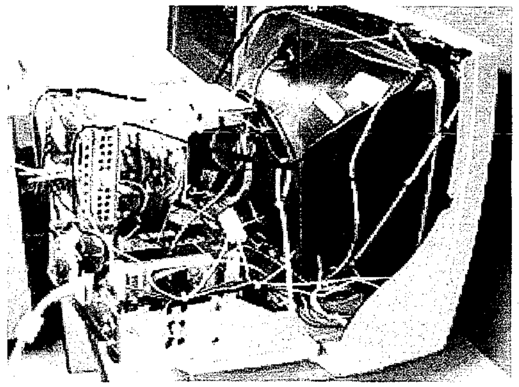


Fig. 3.5

Fig. 3.6

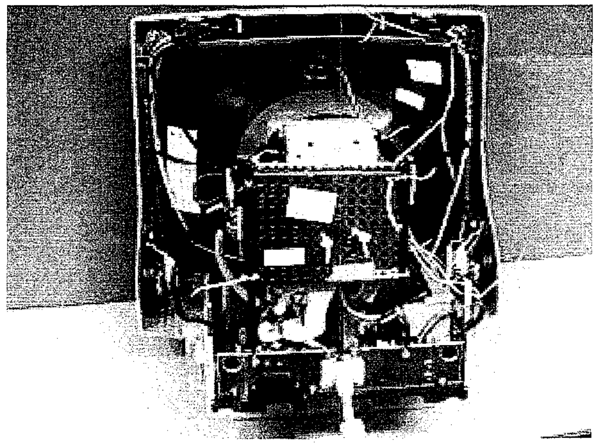
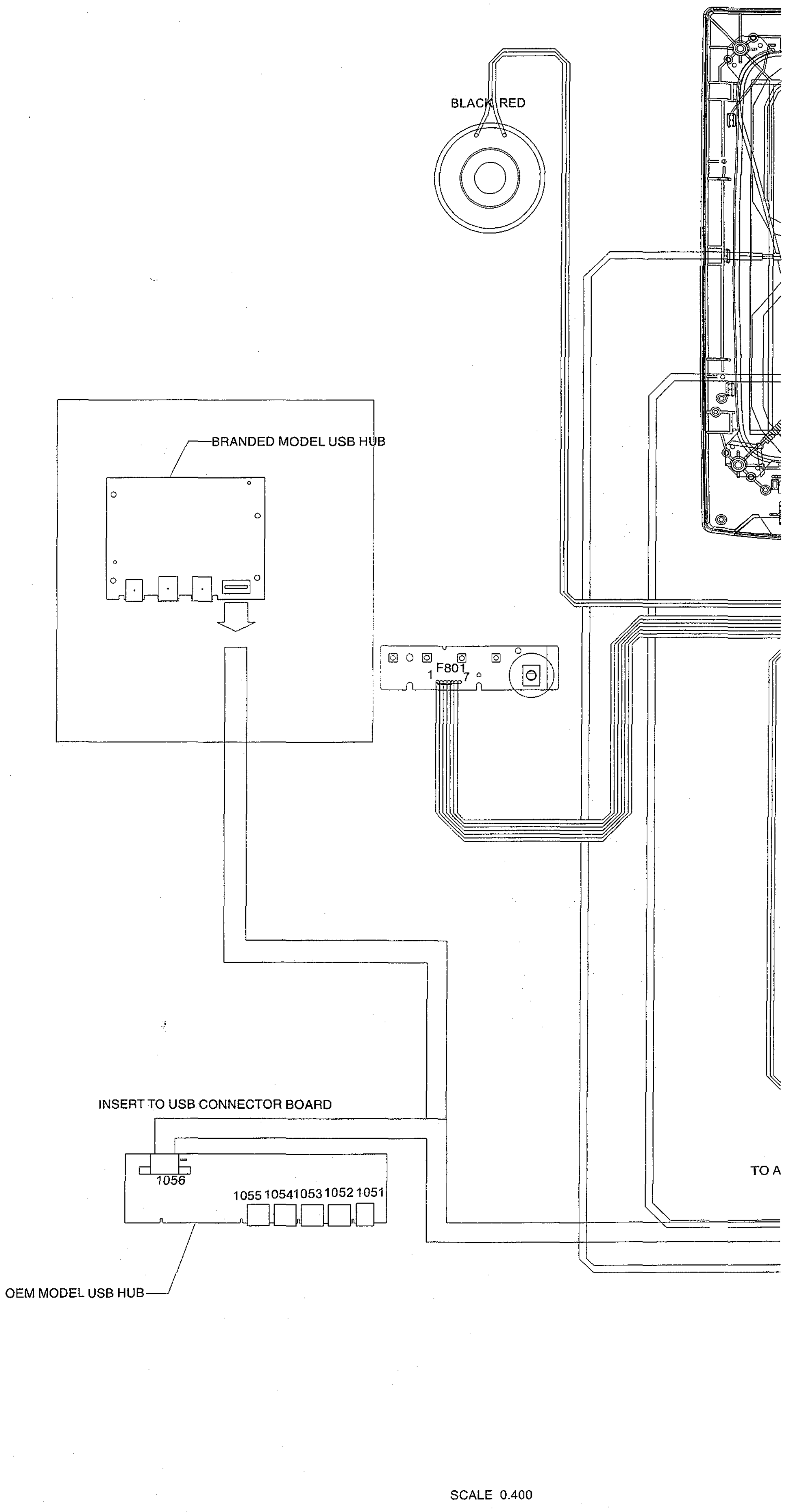
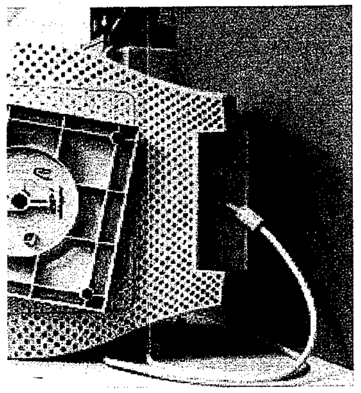


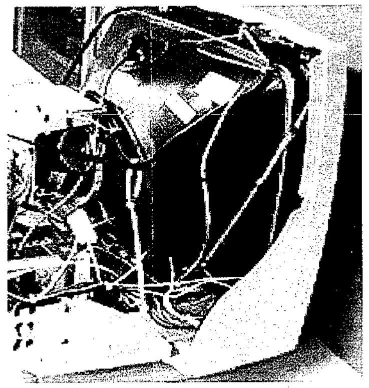
Fig. 3.6



1158

1157





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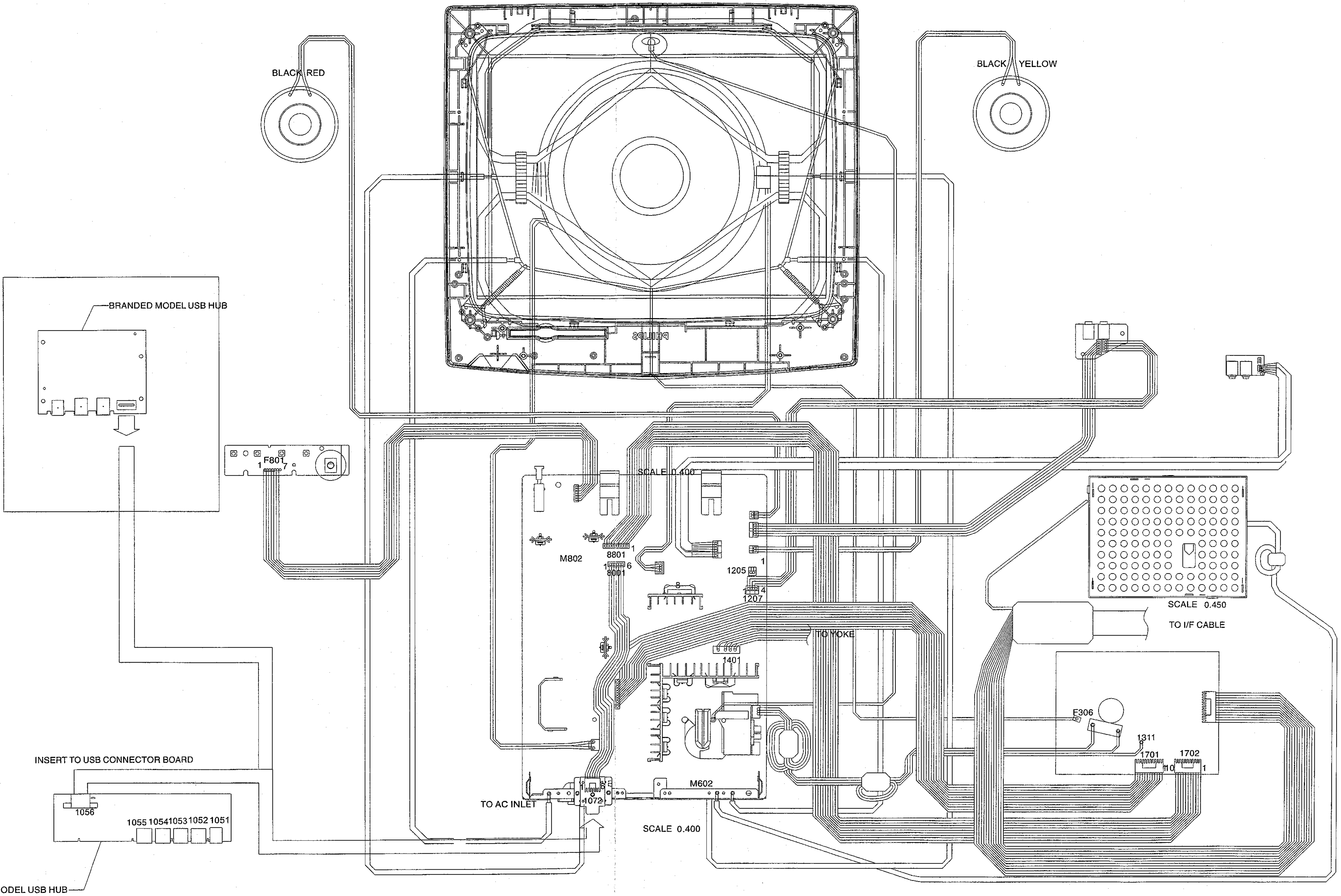
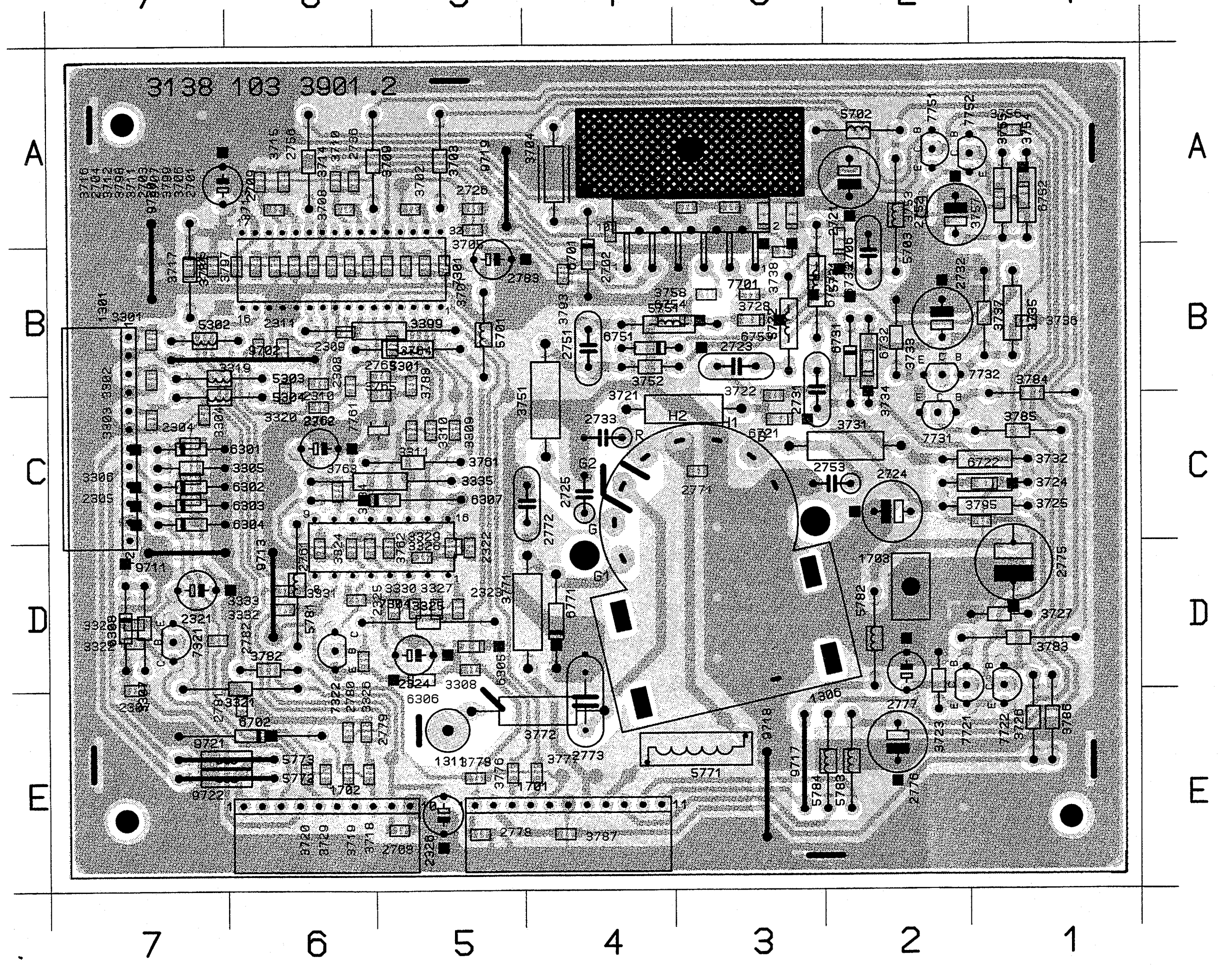

BLACK
RED
BLACK
YELLOW
BRANDED MODEL USB HUB
F801
1
7
SCALE 0.400
M802
8801
1
8001
1
6
1205
1
1207
4
8
TO YOKE
1401
M602
TO AC INLET
1072
SCALE 0.400
SCALE 0.450
TO I/F CABLE
F306
1311
1701
1702
10
1
INSERT TO USB CONNECTOR BOARD
1056
1055
1054
1053
1052
1051
OEM MODEL USB HUB

SCALE 0.400

Video Panel C.B.A. (A)

6732	B	2	3778	E	5	3708	A	6	2773	D	4	1301	B	7
6733	A	2	3781	B	7	3709	A	5	2775	D	1	1306	C	3
6734	A	3	3782	D	6	3710	A	6	2776	E	2	1311	E	5
6751	B	4	3783	D	1	3711	B	6	2777	E	2	1701	E	5
6752	A	1	3784	C	1	3712	B	6	2778	E	5	1702	E	6
6753	B	3	3785	C	1	3713	A	6	2779	E	6	1703	D	2
6754	B	4	3786	D	1	3714	A	6	2780	E	6	2304	C	7
6771	D	4	3787	E	4	3715	A	6	2781	E	6	2305	C	7
7301	B	5	3788	B	5	3716	B	6	2782	D	7	2307	D	7
7304	D	5	3793	B	4	3717	B	7	2783	B	5	2308	B	6
7321	D	7	3794	A	4	3718	E	6	3301	B	7	2309	B	6
7322	D	6	3795	C	1	3719	E	6	3302	B	7	2310	B	6
7701	B	3	3797	B	6	3720	E	6	3303	C	7	2311	B	6
7721	D	2	3798	B	6	3721	C	3	3304	C	7	2321	D	7
7722	D	1	3799	B	5	3722	C	3	3305	C	7	2322	D	5
7731	C	2	5301	B	6	3723	D	2	3306	C	7	2323	D	5
7732	B	2	5302	B	7	3724	C	2	3307	D	7	2324	D	5
7751	A	2	5303	B	7	3725	C	2	3308	D	5	2325	D	5
7752	A	1	5304	C	7	3726	D	1	3309	C	5	2326	E	5
7761	C	5	5701	B	5	3727	D	1	3310	C	5	2701	B	5
9702	B	6	5702	A	2	3728	B	3	3311	C	5	2702	A	4
9711	D	7	5703	A	2	3729	E	6	3318	C	6	2703	B	6
9713	D	6	5722	B	3	3731	C	2	3319	B	6	2704	B	6
9717	E	3	5731	A	3	3732	C	1	3320	C	6	2705	B	7
9718	E	3	5751	B	3	3733	B	2	3321	D	7	2706	A	2
9719	A	5	5771	E	4	3734	B	2	3322	D	7	2707	A	3
9720	A	7	5772	E	7	3735	B	1	3323	D	7	2708	E	5
9721	E	7	5773	E	7	3736	B	1	3324	D	6	2709	A	7
9722	E	7	5781	C	6	3737	B	1	3325	D	6	2721	A	2
			5782	D	2	3738	B	3	3326	D	6	2722	A	3
			5783	E	2	3751	B	4	3327	D	5	2723	B	3
			5784	E	2	3752	B	3	3328	D	5	2724	C	2
			6301	C	7	3753	A	2	3329	C	5	2725	C	4
			6302	C	7	3754	A	1	3330	D	5	2726	A	5
			6303	C	7	3755	A	1	3331	D	6	2731	B	3
			6304	C	7	3756	A	1	3332	D	6	2732	B	2
			6305	D	5	3757	A	1	3333	D	6	2733	C	4
			6306	D	5	3758	B	3	3334	D	6	2736	A	6
			6307	C	5	3761	C	6	3335	C	6	2751	B	4
			6308	D	7	3762	C	5	3399	B	5	2752	A	2
			6701	B	4	3763	C	6	3701	B	5	2753	C	2
			6702	E	7	3764	B	5	3702	A	5	2756	A	6
			6721	C	3	3765	B	6	3703	A	5	2761	C	6
			6722	C	1	3771	D	4	3704	A	4	2762	C	6
			6723	B	3	3772	E	5	3705	A	5	2763	B	5
			6724	A	3	3776	E	5	3706	B	5	2771	C	3
			6731	C	2	3777	E	4	3707	B	6	2772	C	4

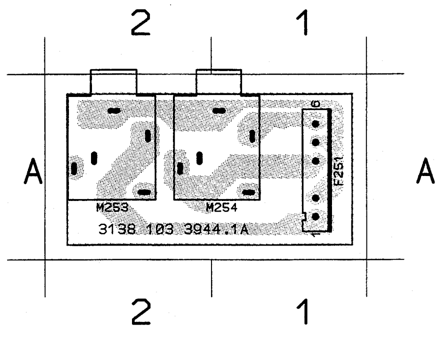
87-01-16 39012MAP.GER



Audio I/P & MIC O/P Panel C.B.A. (E)

39441MAP.GER

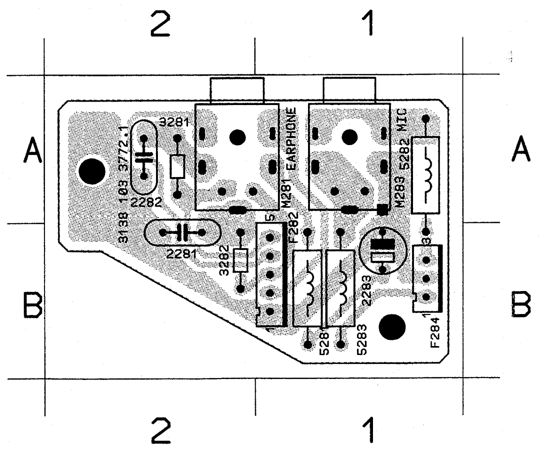
M254	A	1	M253	A	2	F251	A	1

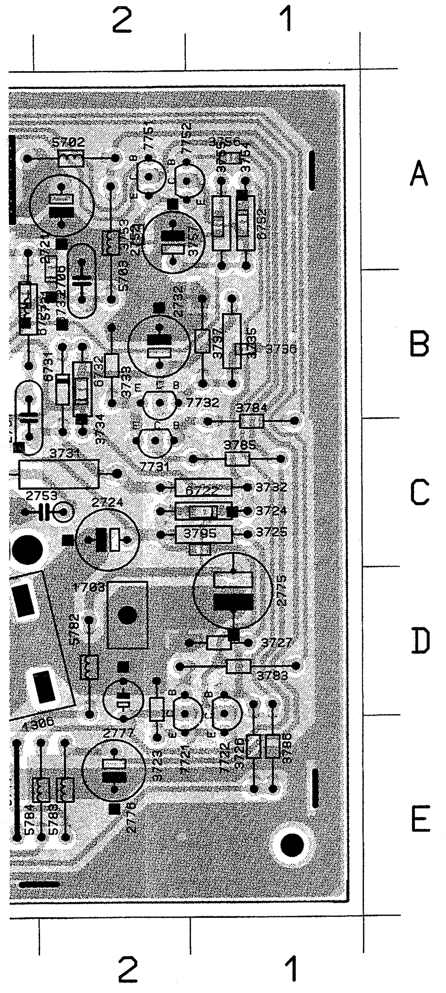


Earphone Panel C.B.A. (F)

37721MAP.GER

5281	B	1	2283	B	1	M283	A	1	F282	B	1
5282	B	1	3281	A	2	2281	B	2	F284	B	1
5283	B	1	3282	B	2	2282	A	2	M281	A	2




2
1
A
B
C
D
E
5702
7751
7752
3756
2792
7732
3784
3785
7731
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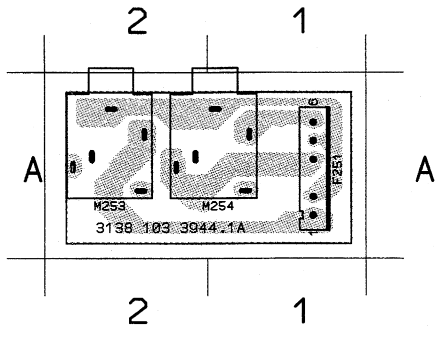
2753
2724
8722
3732
3724
3795
3725
1703
2775
5782
3727
3783
2777
4300
2776
5784
5783
3786

Audio I/P & MIC O/P Panel C.B.A. (E)

39441MAP.GER

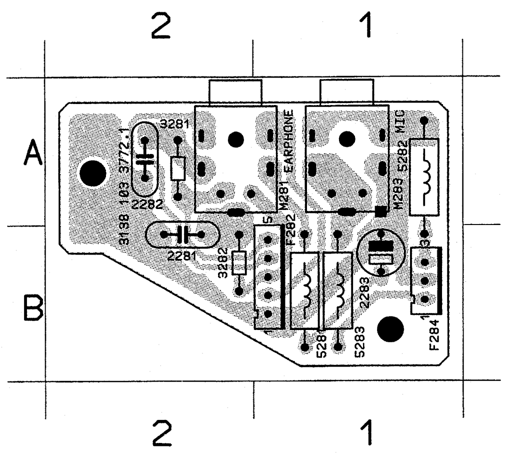
M254 A 1	M253 A 2	F251 A 1


2
1
A
M253
M254
F251
3138 103 3944.1A

Earphone Panel C.B.A. (F)

37721MAP.GER

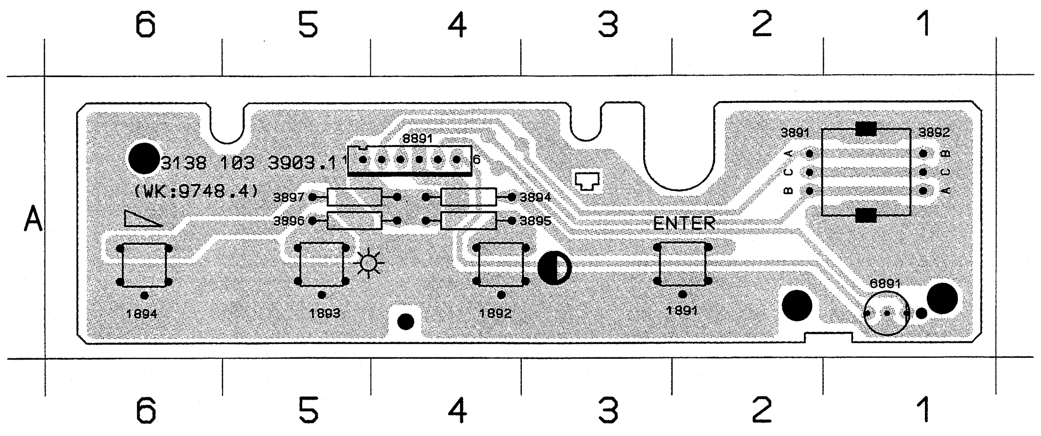
5281 B 1	2283 B 1	M283 A 1	F282 B 1
5282 B 1	3281 A 2	2281 B 2	F284 B 1
5283 B 1	3282 B 2	2282 A 2	M281 A 2


2
1
A
B
3138 103 3772.1
3281
2282
2281
3282
F282
M281 EARPHONE
M283 MIC
5282
2283
5281
5283
F284

Control Panel C.B.A. (G)

39031MAP.GER

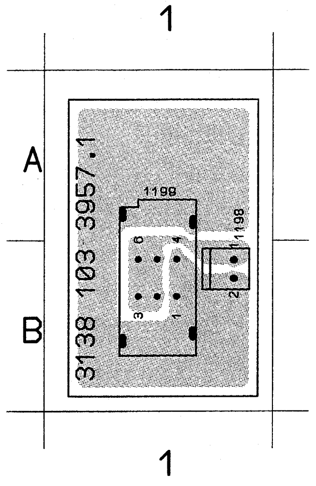
6891 A 1	3896 A 4	3894 A 4	3891 A 2	1893 A 5	1891 A 2
8891 A 5	3897 A 4	3895 A 4	3892 A 1	1894 A 6	1892 A 3


6
5
4
3
2
1
A
3138 103 3903.1
(WK:9748.4)
8891
3897
3896
3894
3895
3891
3892
ENTER
1894
1893
1892
1891
6891

Power Switch Panel C.B.A. (H)

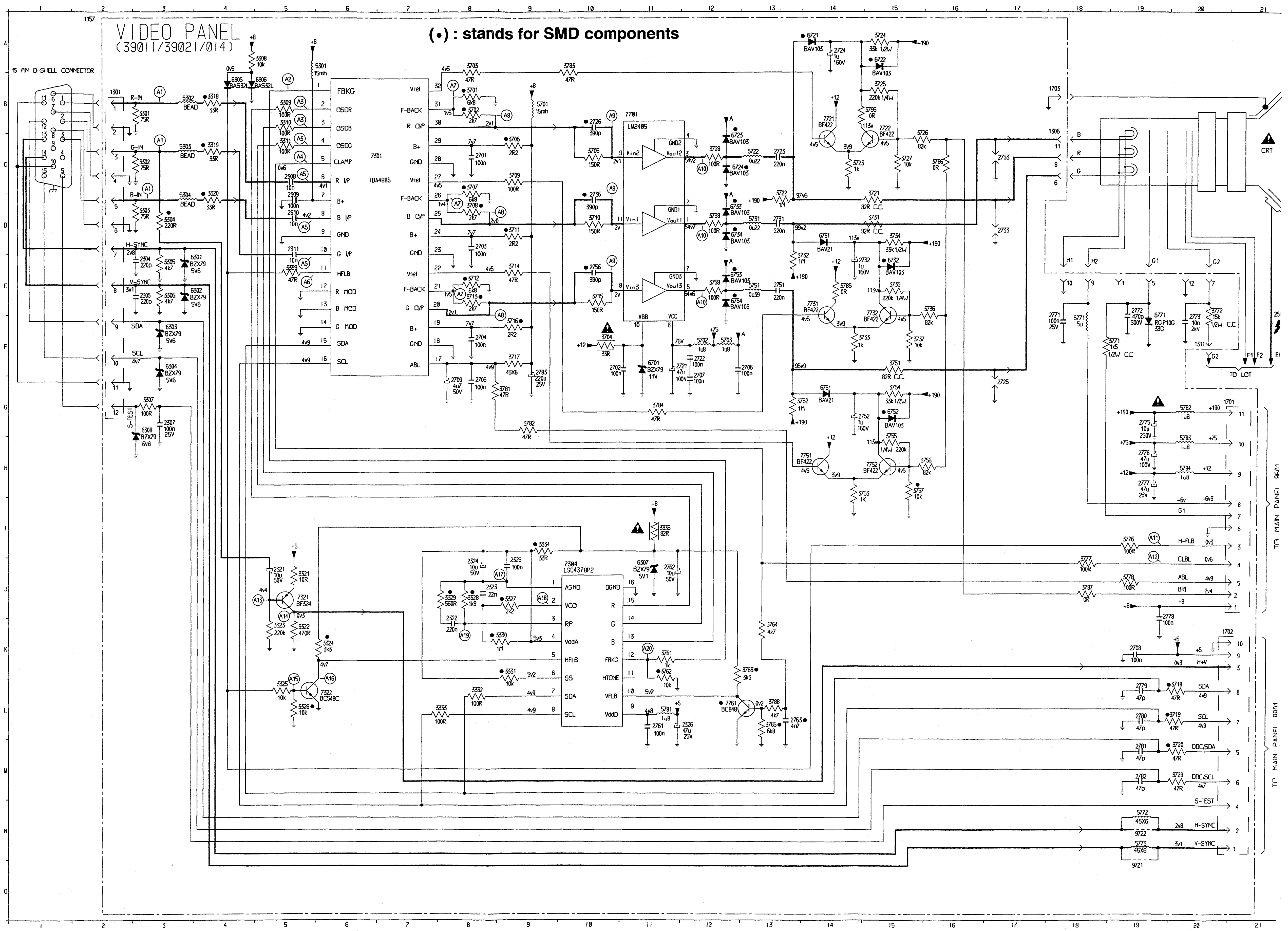
39571MAP.GER

1198	B 1
1199	B 1

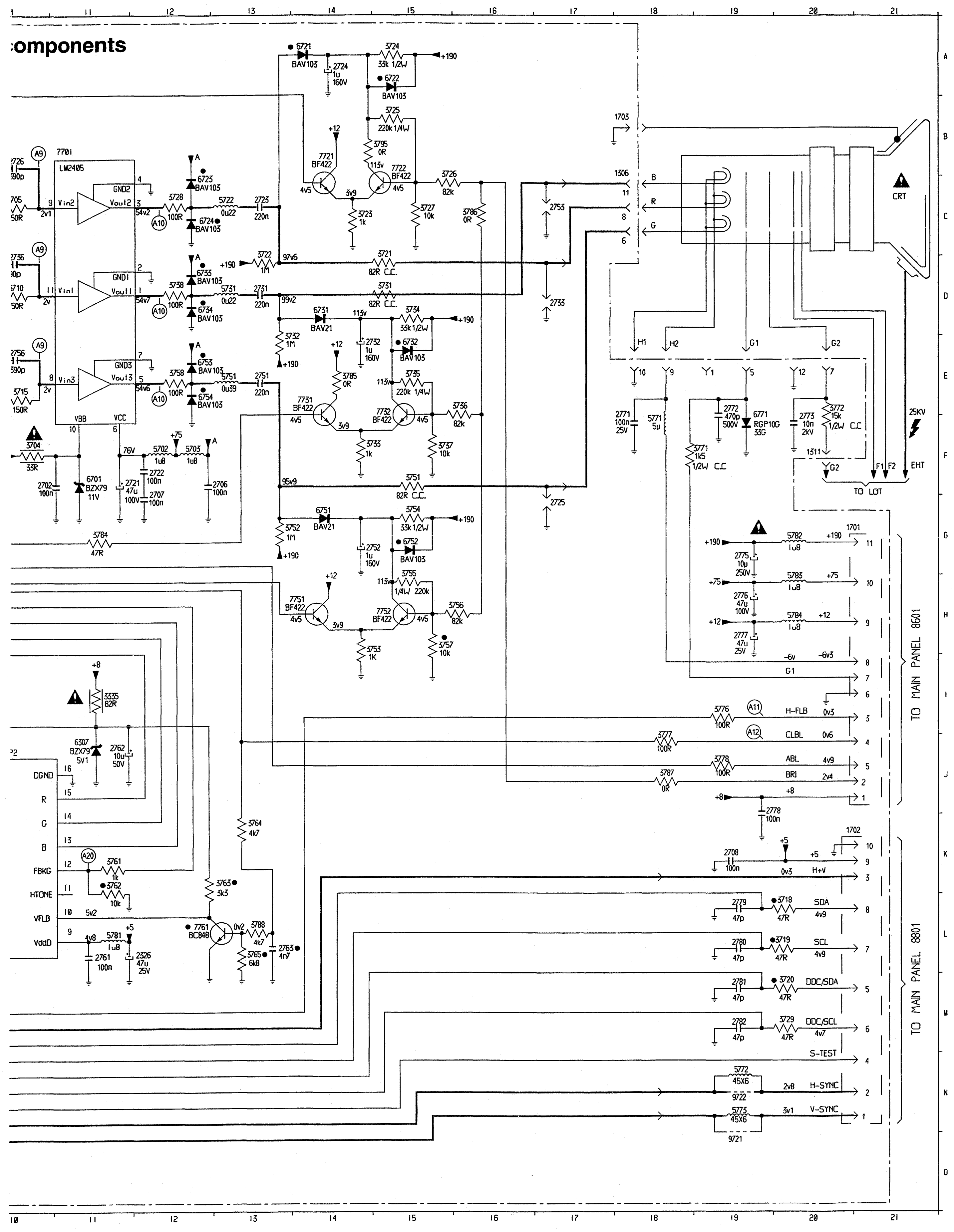

1
A
B
3138 103 3957.1
1199
1198

Video Schematic Diagram

A


VIDEO PANEL
(39011/39021/014)
(•) : stands for SMD components
15 PIN D-SHELL CONNECTOR
R-IN
G-IN
B-IN
H-SYNC
V-SYNC
SDA
SCL
S-TEST
7501
TDA4885
7701
LM2405
7304
LSC4378P2
CRT
TO LOT
TO MAIN PANEL

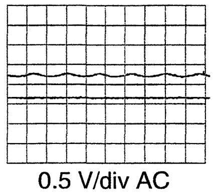
:omponents



1301	G 2
1301	G 2
1301	F 2
1301	F 2
1301	E 2
1301	D 2
1301	D 2
1301	D 2
1301	C 2
1301	C 2
1301	B 2
1301	B 2
1306	B17
1306	C18
1306	C18
1306	E18
1306	E18
1306	E19
1306	E20
1306	E20
1311	F20
1701	G20
1701	J21
1701	J21
1701	J21
1701	J21
1701	I21
1701	I21
1701	I21
1701	I21
1701	H21
1701	H21
1702	K20
1702	L21
1702	L21
1702	K21
1702	K21
1702	N21
1702	N21
1702	N21
1702	M21
1702	M21
1703	B18
2304	E 3
2305	E 3
2307	G 3
2308	C 5
2309	D 5
2310	D 5
2311	D 5
2321	J 5
2322	K 8
2323	J 8
2324	J 8
2325	J 9
2326	L12
2701	C 8
2702	F10
2703	D 8
2704	F 8
2705	G 8
2706	F13
2707	G12
2708	K19
2709	G 8
2721	F12
2722	F12
2723	C13
2724	A14
2725	G17
2726	B10
2731	D13
2732	E15
2733	D17
2736	D10
2751	E13
2752	G15
2753	C17
2756	E10
2761	L11
2762	J11
2763	L13
2771	F18
2772	E19
2773	F20
2775	G19
2776	H19
2777	H19
2778	J19
2779	L19
2780	L19
2781	M19
2782	M19
2783	F 9
3301	B 3
3302	C 3
3303	D 3
3304	D 3
3305	E 3
3306	E 3
3307	G 3
3308	A 5
3309	B 5
3310	B 5
3311	C 5
3318	B 4
3319	C 4
3320	D 4
3321	J 5
3322	K 5
3323	K 5
3324	K 6
3325	L 5
3326	L 5
3327	J 9
3328	J 8
3329	J 8
3330	K 9
3331	K 9
3332	L 8
3333	L 8
3334	I 9
3335	I11
3399	E 5
3701	B 8
3702	B 8
3703	A 8
3704	F10
3705	C10
3706	C 9
3707	C 8
3708	D 8
3709	C 9
3710	D10
3711	D 9
3712	E 8
3713	E 8
3714	E 9
3715	E10
3716	F 9
3717	F 9
3718	L20
3719	L20
3720	M20
3721	D15
3722	D13
3723	C14
3724	A15
3725	B15
3726	C15
3727	C15
3728	C12
3729	M20
3731	D15
3732	E14
3733	F15
3734	D15
3735	E15
3736	E16
3737	F15
3738	D12
3751	F15
3752	G14
3753	H15
3754	G15
3755	H15
3756	H16
3757	H15
3758	E12
3761	K11
3762	K11
3763	K13
3764	K13
3765	L13
3771	F19
3772	E20
3776	I19
3777	J18
3778	J19
3781	G 9
3782	G 9
3783	A10
3784	G11
3785	E14
3786	C16
3787	J18
3788	L13
3795	B15
5301	A 6
5302	B 3
5303	C 3
5304	D 3
5701	B 9
5702	F12
5703	F12
5722	C13
5731	D13
5751	E13
5771	F18
5772	N19
5773	N19
5781	L11
5782	G20
5783	H20
5784	H20
6301	E 4
6302	E 4
6303	F 3
6304	F 3
6305	B 4
6306	B 5
6307	J11
6308	G 3
6701	F11
6721	A14
6722	A15
6723	C12
6724	C12
6731	D14
6732	E15
6733	D12
6734	D12
6751	G14
6752	G15
6753	E12
6754	E12
6771	F19
7301	C 6
7304	J10
7321	J 5
7322	L 6
7701	B11
7721	B14
7722	B15
7731	E14
7732	E15
7751	H14
7752	H15
7761	L12
9721	O19
9722	N19

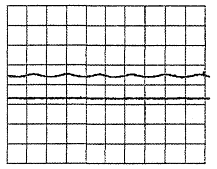
Waveforms for Diagram A

A1 1301-1



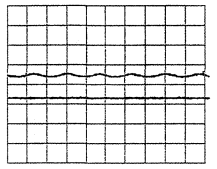
0.5 V/div AC
10 mS/div

A1 1301-3



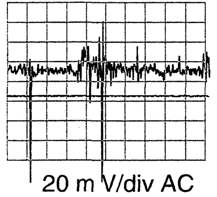
0.5 V/div AC
10 mS/div

A1 1301-5



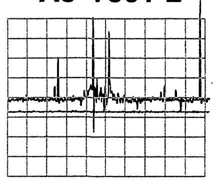
0.5 V/div AC
10 mS/div

A2 7301-1



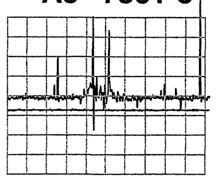
20 m V/div AC
10 uS/div

A3 7301-2



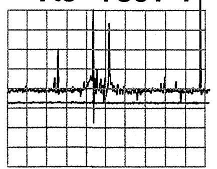
20 m V/div AC
5 uS/div

A3 7301-3



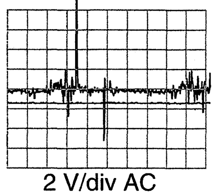
20 m V/div AC
5 uS/div

A3 7301-4



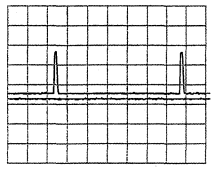
20 m V/div AC
5 uS/div

A4 7301-5



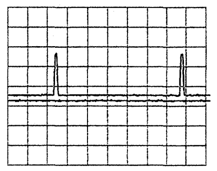
2 V/div AC
5 uS/div

A5 7301-6



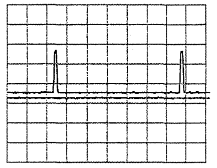
1 V/div AC
5 uS/div

A5 7301-8



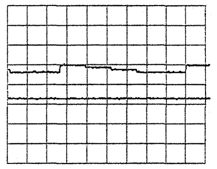
1 V/div AC
5 uS/div

A5 7301-10



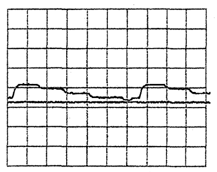
1 V/div AC
5 uS/div

A6 7301-11



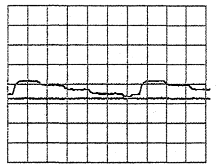
2 V/div AC
5 uS/div

A7 7301-31



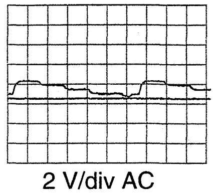
2 V/div AC
5 uS/div

A7 7301-26



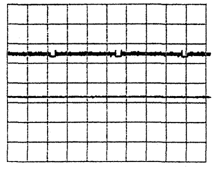
2 V/div AC
5 uS/div

A7 7301-21

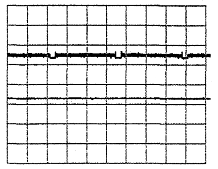


2 V/div AC
5 uS/div

A8 7301-30

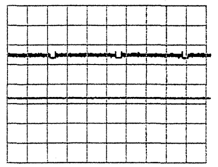


A8 7301-30



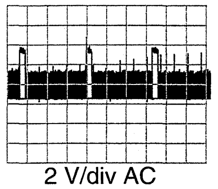
2 V/div AC
5 uS/div

A8 7301-30



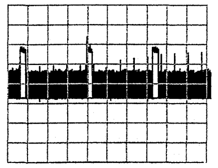
2 V/div AC
5 uS/div

A9 7701-9



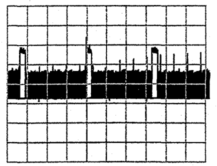
2 V/div AC
5 uS/div

A9 7701-11



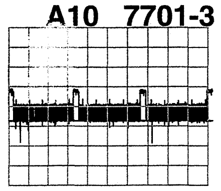
2 V/div AC
5 uS/div

A9 7701-8



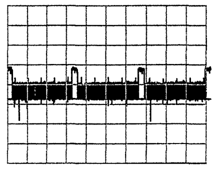
2 V/div AC
5 uS/div

A10 7701-3



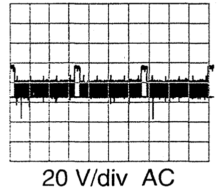
20 V/div AC
5 uS/div

A10 7701-1



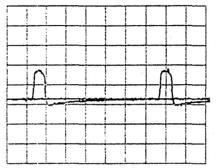
20 V/div AC
5 uS/div

A10 7701-5



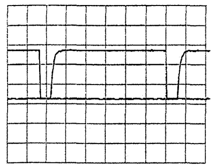
20 V/div AC
5 uS/div

A11 1701-3



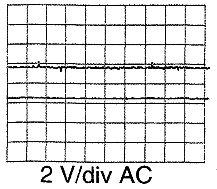
2 V/div AC
10 uS/div

A12 1701-4



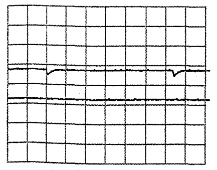
2 V/div AC
10 uS/div

A13 7321-B



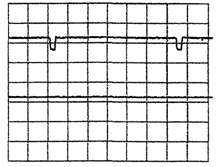
2 V/div AC
0.2 mS/div

A14 7321-C



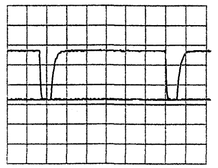
0.5 V/div AC
10 uS/div

A15 7322-B



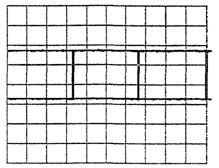
0.2 V/div AC
10 uS/div

A16 7322-C



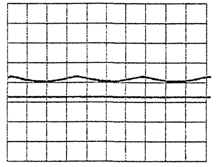
2 V/div AC
5 uS/div

A17 7304-1



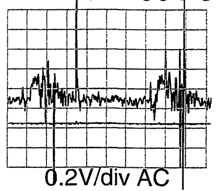
50 mV/div AC
5 uS/div

A18 7304-2



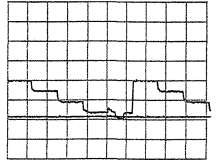
0.2V/div AC
5 uS/div

A19 7304-3



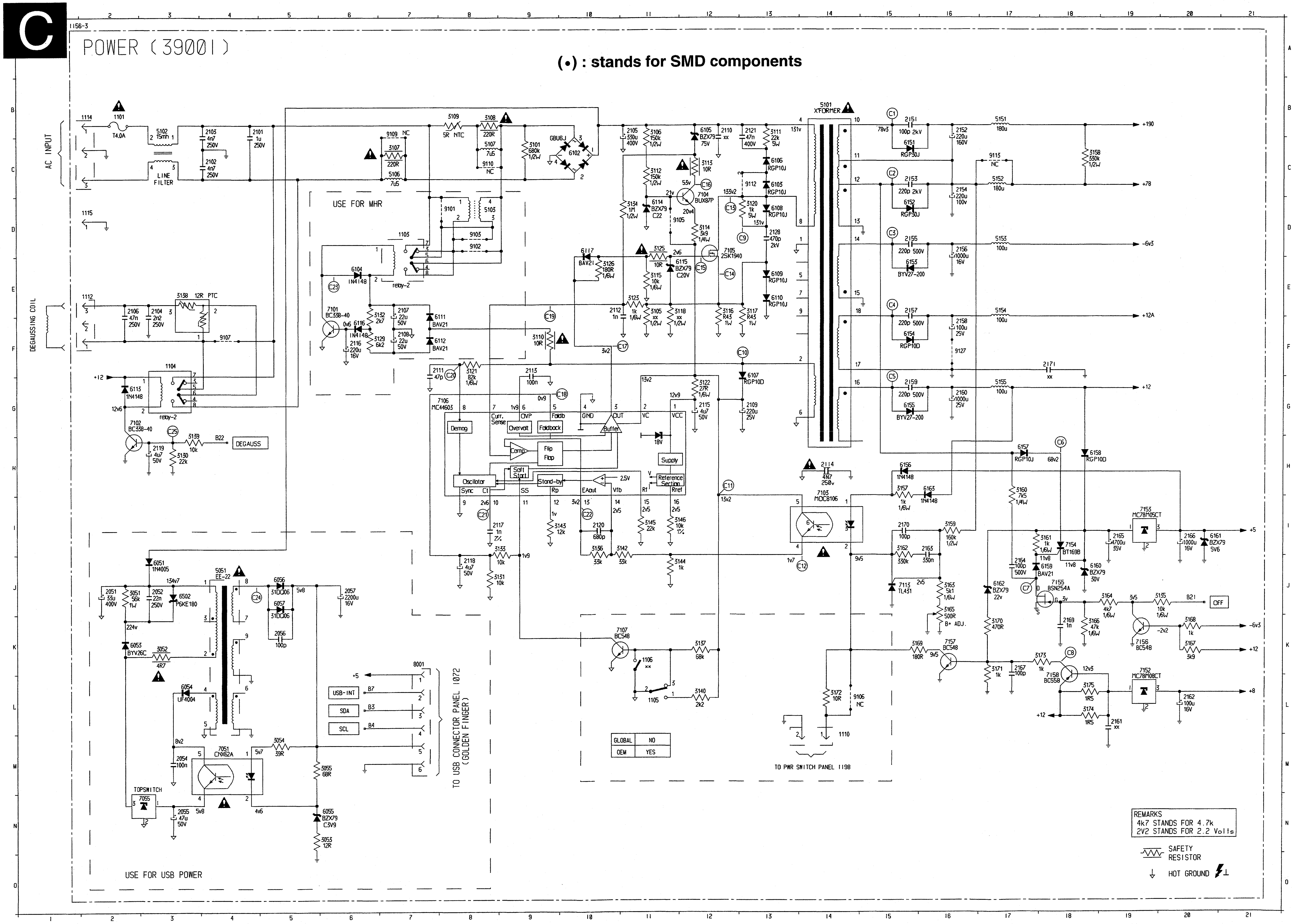
0.2V/div AC
5 uS/div

A20 7304-12



50 mV/div AC
5 uS/div

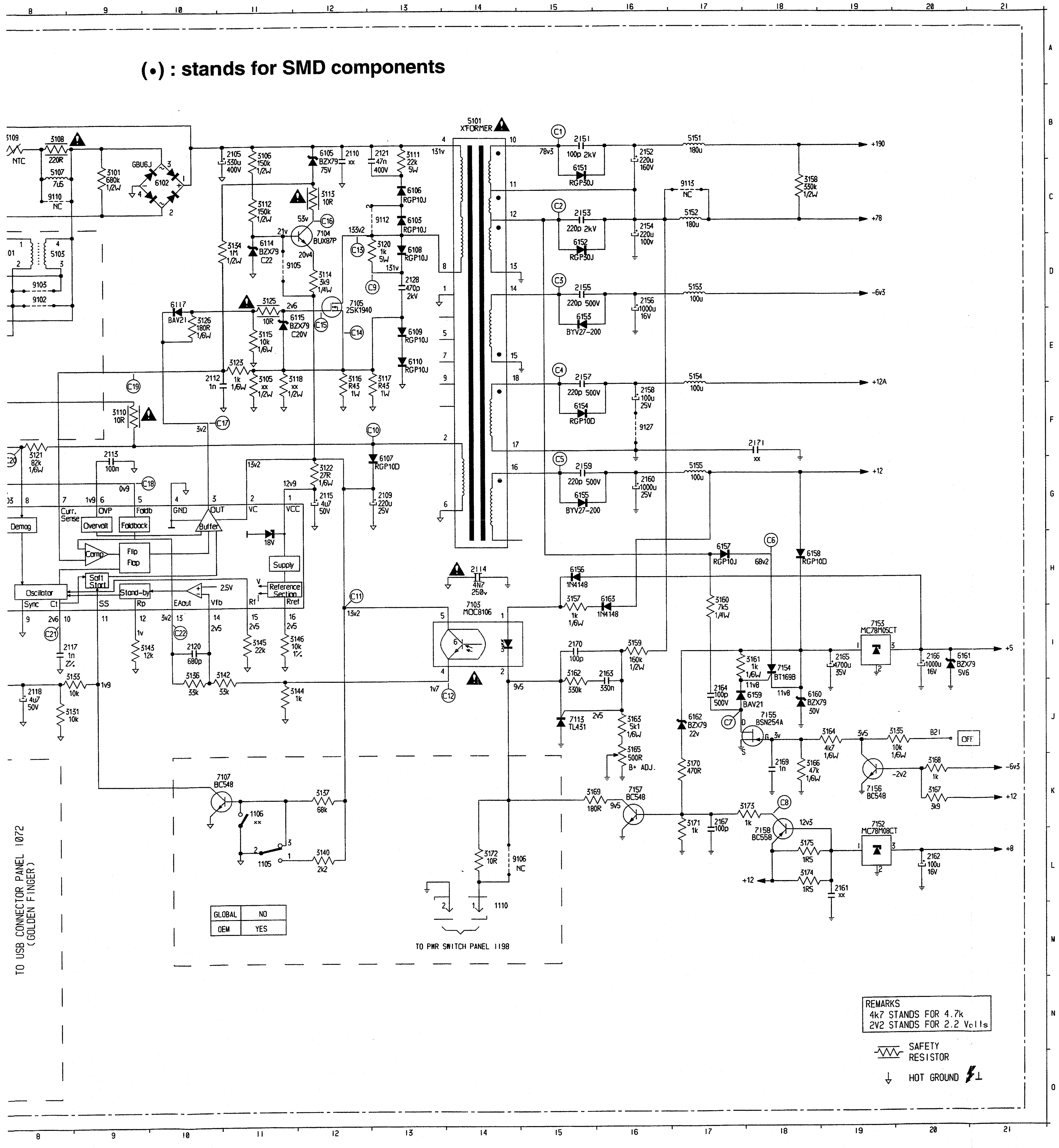
Power Supply Schematic Diagram


C
1156-3
POWER (39001)
(•) : stands for SMD components
AC INPUT
DEGAUSSING COIL
1101 T4.0A
5102 15mH
LINE FILTER
2103 4n7 250V
2101 1u 250V
2102 4n7 250V
3109 5R NTC
3108 220R
3107 220R
5106 7u5
5107 7u5
9109 NC
9110 NC
3101 680k 1/2W
GBU6J 6102
3138 12R PTC
2106 47n 250V
2104 2n2 250V
9107
1104 relay-2
6113 1N4148
7102 BC338-40
3139 10k
3130 22k
2119 4u7 50V
B22 DEGAUSS
USE FOR MHR
9101
5103
1103
9105
9102
6104 1N4148
relay-2
7101 BC338-40
6116 1N4148
3132 2k7
3129 6k2
2116 220u 16V
2107 22u 50V
2108 22u 50V
6111 BAV21
6112 BAV21
2105 330u 400V
3106 150k 1/2W
6105 BZX79 75V
2110 xx
2121 47n 400V
3111 22k 5W
3113 10R
3112 150k 1/2W
3134 1M 1/2W
6114 BZX79 C22
7104 BUX87P
3114 3k9 1/4W
9112
3120 1k 5W
6106 RGP10J
6103 RGP10J
6108 RGP10J
2128 470p 2kV
6109 RGP10J
6110 RGP10J
7105 2SK1940
6117 BAV21
3126 180R 1/6W
3125 10R
6115 BZX79 C20V
3115 10k 1/6W
2112 1n
3123 1k 1/6W
3105 xx 1/2W
3118 xx 1/2W
3116 R43 1W
3117 R43 1W
3110 10R
3121 82k 1/6W
2111 47p
2113 100n
7106 MC44603
Curr. Sense
OVP
Foldb
GND
OUT
VC
VCC
Demag
Overvolt
Foldback
Buffer
Comp
Flip Flop
Supply
Oscillator
Soft Start
Stand-by
Reference Section
Sync
Ct
SS
Rp
EAout
Vfb
Rt
Rref
2117 1n 2%
2118 4u7 50V
3133 10k
3131 10k
3143 12k
2120 680p
3136 33k
3142 33k
3145 22k
3146 10k 1%
3144 1k
3122 27R 1/6W
2115 4u7 50V
6107 RGP10D
2109 220u 25V
5101 XFORMER
2151 100p 2kV
6151 RGP30J
2152 220u 160V
5151 180u
3158 330k 1/2W
+190
9113 NC
2153 220p 2kV
6152 RGP30J
2154 220u 100V
5152 180u
+78
2155 220p 500V
6153 BYV27-200
2156 1000u 16V
5153 100u
-6v3
2157 220p 500V
6154 RGP10D
2158 100u 25V
5154 100u
+12A
9127
2171 xx
2159 220p 500V
6155 BYV27-200
2160 1000u 25V
5155 100u
+12
6157 RGP10J
6158 RGP10D
2114 4N7 250V
7103 MOC8106
6156 1N4148
3157 1k 1/6W
6163 1N4148
3160 7k5 1/4W
2170 100p
3159 160k 1/2W
3162 330k
2163 330n
7113 TL431
3163 5k1 1/6W
3165 500R B+ ADJ.
2164 100p 500V
3161 1k 1/6W
6159 BAV21
7154 BT169B
6160 BZX79 30V
7153 MC78M05CT
2165 4700u 35V
2166 1000u 16V
6161 BZX79 5V6
+5
6162 BZX79 22V
7155 BSN254A
3164 4k7 1/6W
3166 47k 1/6W
2169 1n
3135 10k 1/6W
B21 OFF
7156 BC548
3168 1k
3167 3k9
-6v3
+12
3170 470R
3169 180R
7157 BC548
3171 1k
2167 100p
3173 1k
7158 BC558
3175 1R5
3174 1R5
2161 xx
7152 MC78M08CT
2162 100u 16V
+8
+12
7107 BC548
1106 xx
3137 68k
1105
3140 2k2
GLOBAL NO
OEM YES
3172 10R
9106 NC
1110
TO PWR SWITCH PANEL 1198
6051 1N4005
2051 33u 400V
3051 56k 1W
2052 22n 250V
6502 P6KE180
5051 EE-22
6056 31DQ06
6057 31DQ06
2056 100p
2057 2200u 16V
6053 BYV26C
3052 4R7
6054 UF4004
8001
USB-INT B7
SDA B3
SCL B4
TO USB CONNECTOR PANEL 1072 (GOLDEN FINGER)
2054 100n
7051 CNX62A
3054 39R
3055 68R
TOPSWITCH 7055
2055 47u 50V
6055 BZX79 C3V9
3053 12R
USE FOR USB POWER
REMARKS
4k7 STANDS FOR 4.7k
2V2 STANDS FOR 2.2 Volts
SAFETY RESISTOR
HOT GROUND

1101	B 2
1103	D 7
1104	F 3
1105	L11
1106	K11
1110	M14
1110	M14
1112	F 2
1112	E 2
1112	E 2
1114	C 2
1114	C 2
1114	B 2
1115	D 2
2051	J 2
2052	J 3
2054	M 3
2055	N 3
2056	K 5
2057	J 6
2101	B 4
2102	C 4
2103	B 4
2104	E 3
2105	B11
2106	E 2
2107	E 7
2108	F 7
2109	G13
2110	B12
2111	F 7
2112	E10
2113	F 9
2114	H14
2115	G12
2116	F 6
2117	I 8
2118	J 8
2119	H 3
2120	I10
2121	B13
2128	D13
2151	B15
2152	B16
2153	C15
2154	C16
2155	D15
2156	D16
2157	E15
2158	F16
2159	G15
2160	G16
2161	L19
2162	L20
2163	I16
2164	J17
2165	I19
2166	I20
2167	K17
2169	K18
2170	I15
2171	F18
3051	J 2
3052	K 3
3053	N 6
3054	M 5
3055	M 6
3101	C 9
3105	E11
3106	B11
3107	C 7
3108	B 8
3109	B 8
3110	F 9
3111	B13
3112	C11
3113	C12
3114	D12
3115	E11
3116	E12
3117	E13
3118	E12
3120	D13
3121	F 8
3122	G12
3123	E11
3125	D11
3126	E10
3129	F 7
3130	H 3
3131	J 9
3132	E 7
3133	I 9
3134	D11
3135	J20
3136	I10
3137	K12
3138	E 3
3139	H 3
3140	L12
3142	I11
3143	I10
3144	J12
3145	I11
3146	I12
3157	H15
3158	C18
3159	I16
3160	H17
3161	I18
3162	I15
3163	J16
3164	J19
3165	J16
3166	K18
3167	K20
3168	K20
3169	K15
3170	K17
3171	K17
3172	L14
3173	K18
3174	L18
3175	L18
5051	J 4
5101	B14
5102	C 3
5103	D 8
5106	C 7
5107	C 8
5151	B17
5152	C17
5153	D17
5154	E17
5155	G17
6051	J 3
6053	K 2
6054	L 3
6055	N 6
6056	J 5
6057	J 5
6102	C10
6103	C13
6104	E 6
6105	B12
6106	C13
6107	G13
6108	D13
6109	E13
6110	E13
6111	F 8
6112	F 8
6113	G 2
6114	D11
6115	E12
6116	F 6
6117	D10
6151	C15
6152	D15
6153	E15
6154	F1
6155	G1
6156	H1
6157	H1
6158	H1
6159	J1
6160	J1
6161	I2
6162	J1
6163	H1
6502	J
7051	M
7055	N
7101	E
7102	G
7103	H1
7104	C1
7105	D1
7106	G
7107	K1
7113	J1
7152	K1
7153	I1
7154	I1
7155	J1
7156	K1
7157	K1
7158	K1
8001	L
8001	L
8001	L
8001	K
8001	M
8001	M
9101	D
9102	D
9103	D
9105	D1
9106	L1
9107	F
9109	B
9110	C
9112	C1
9113	C1
9127	F1

Power Supply Schematic Diagram

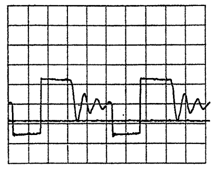
(•) : stands for SMD components


5101 XFORMER
GBU6J
6102
7104 BUX87P
7105 2SK1940
7103 MOC8106
7107 BC548
7113 TL431
7153 MC78M05CT
7152 MC78M08CT
7154 BT169B
7155 BSN254A
7156 BC548
7157 BC548
7158 BC558
NTC
+190
+78
-6v3
+12A
+12
+5
+8
-6v3
+12
OFF
Demog
Oscillator
Sync
Curr. Sense
OVP
Overvolt
Foldb
Foldback
GND
OUT
VC
VCC
Comp
Flip Flop
Buffer
Soft Start
Stand-by
Reference Section
Supply
SS
Rp
EAout
Vfb
Rf
Rref
2.5V
18V
GLOBAL
NO
OEM
YES
TO PWR SWITCH PANEL 1198
TO USB CONNECTOR PANEL 1072 (GOLDEN FINGER)
REMARKS
4k7 STANDS FOR 4.7k
2V2 STANDS FOR 2.2 Volts
SAFETY RESISTOR
HOT GROUND

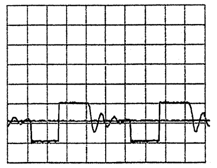
1101	B 2
1103	D 7
1104	F 3
1105	L11
1106	K11
1110	M14
1110	M14
1112	F 2
1112	E 2
1112	E 2
1114	C 2
1114	C 2
1114	B 2
1115	D 2
2051	J 2
2052	J 3
2054	M 3
2055	N 3
2056	K 5
2057	J 6
2101	B 4
2102	C 4
2103	B 4
2104	E 3
2105	B11
2106	E 2
2107	E 7
2108	F 7
2109	G13
2110	B12
2111	F 7
2112	E10
2113	F 9
2114	H14
2115	G12
2116	F 6
2117	I 8
2118	J 8
2119	H 3
2120	I10
2121	B13
2128	D13
2151	B15
2152	B16
2153	C15
2154	C16
2155	D15
2156	D16
2157	E15
2158	F16
2159	G15
2160	G16
2161	L19
2162	L20
2163	I16
2164	J17
2165	I19
2166	I20
2167	K17
2169	K18
2170	I15
2171	F18
3051	J 2
3052	K 3
3053	N 6
3054	M 5
3055	M 6
3101	C 9
3105	E11
3106	B11
3107	C 7
3108	B 8
3109	B 8
3110	F 9
3111	B13
3112	C11
3113	C12
3114	D12
3115	E11
3116	E12
3117	E13
3118	E12
3120	D13
3121	F 8
3122	G12
3123	E11
3125	D11
3126	E10
3129	F 7
3130	H 3
3131	J 9
3132	E 7
3133	I 9
3134	D11
3135	J20
3136	I10
3137	K12
3138	E 3
3139	H 3
3140	L12
3142	I11
3143	I10
3144	J12
3145	I11
3146	I12
3157	H15
3158	C18
3159	I16
3160	H17
3161	I18
3162	I15
3163	J16
3164	J19
3165	J16
3166	K18
3167	K20
3168	K20
3169	K15
3170	K17
3171	K17
3172	L14
3173	K18
3174	L18
3175	L18
5051	J 4
5101	B14
5102	C 3
5103	D 8
5106	C 7
5107	C 8
5151	B17
5152	C17
5153	D17
5154	E17
5155	G17
6051	J 3
6053	K 2
6054	L 3
6055	N 6
6056	J 5
6057	J 5
6102	C10
6103	C13
6104	E 6
6105	B12
6106	C13
6107	G13
6108	D13
6109	E13
6110	E13
6111	F 8
6112	F 8
6113	G 2
6114	D11
6115	E12
6116	F 6
6117	D10
6151	C15
6152	D15
6153	E15
6154	F15
6155	G15
6156	H15
6157	H17
6158	H18
6159	J18
6160	J18
6161	I20
6162	J17
6163	H16
6502	J 3
7051	M 4
7055	N 3
7101	E 6
7102	G 3
7103	H14
7104	C12
7105	D12
7106	G 7
7107	K11
7113	J15
7152	K19
7153	I19
7154	I18
7155	J18
7156	K19
7157	K16
7158	K18
8001	L 7
8001	L 7
8001	L 7
8001	K 7
8001	M 7
8001	M 7
9101	D 8
9102	D 8
9103	D 8
9105	D11
9106	L14
9107	F 4
9109	B 7
9110	C 8
9112	C13
9113	C17
9127	F16

Waveforms for Diagram C

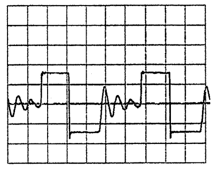
C1 5101-10


100 V/div AC
5 uS/div

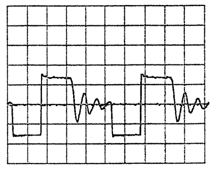
C2 5101-12


100 V/div AC
5 uS/div

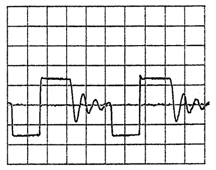
C3 5101-14


5 V/div AC
5 uS/div

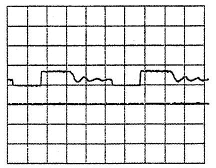
C4 5101-18


10 V/div AC
5 uS/div

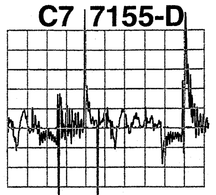
C5 5101-16


10 V/div AC
5 uS/div

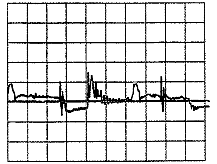
C6 6157-N


50 V/div AC
5 uS/div

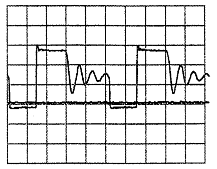
C7 7155-D


50 mV/div AC
5 uS/div

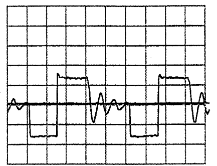
C8 7158-C


50 mV/div AC
5 uS/div

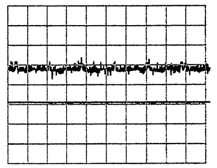
C9 5101-8


100 V/div AC
5 uS/div

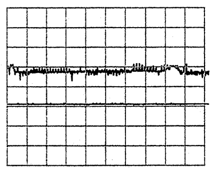
C10 5101-2


10 V/div AC
5 uS/div

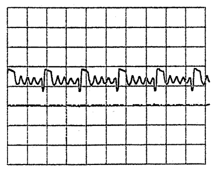
C11 7103-5


1 V/div AC
10 mS/div

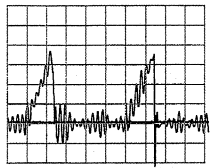
C12 5136-2


50 V/div AC
5 uS/div

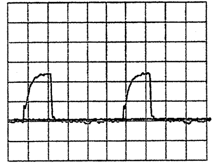
C13 7105-D


50 V/div AC
5 uS/div

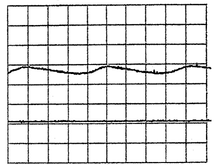
C14 7105-S


0.2 V/div AC
5 uS/div

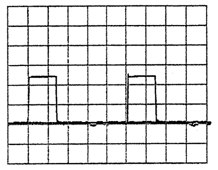
C15 7105-G


5 V/div AC
5 uS/div

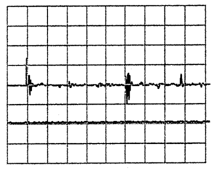
C16 7104-C


20 V/div AC
2 mS/div

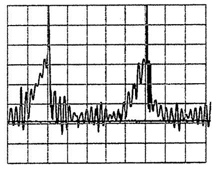
C17 7106-3


5 V/div AC
5 uS/div

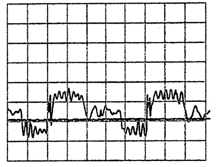
C18 7106-5


0.5 V/div AC
5 uS/div

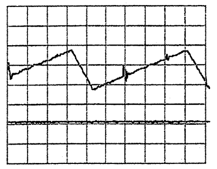
C19 7106-7


0.2 V/div AC
5 uS/div

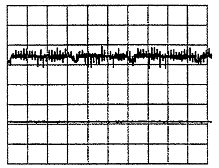
C20 7106-8


0.5 V/div AC
5 uS/div

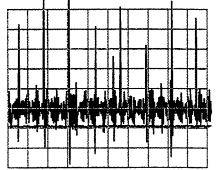
C21 7106-10


1 V/div AC
5 uS/div

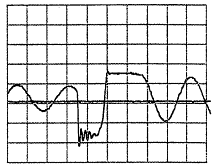
C22 7106-13


1 V/div AC
5 mS/div

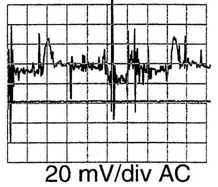
C23 7101-C


0.1 V/div AC
20 uS/div

C24 5051-8

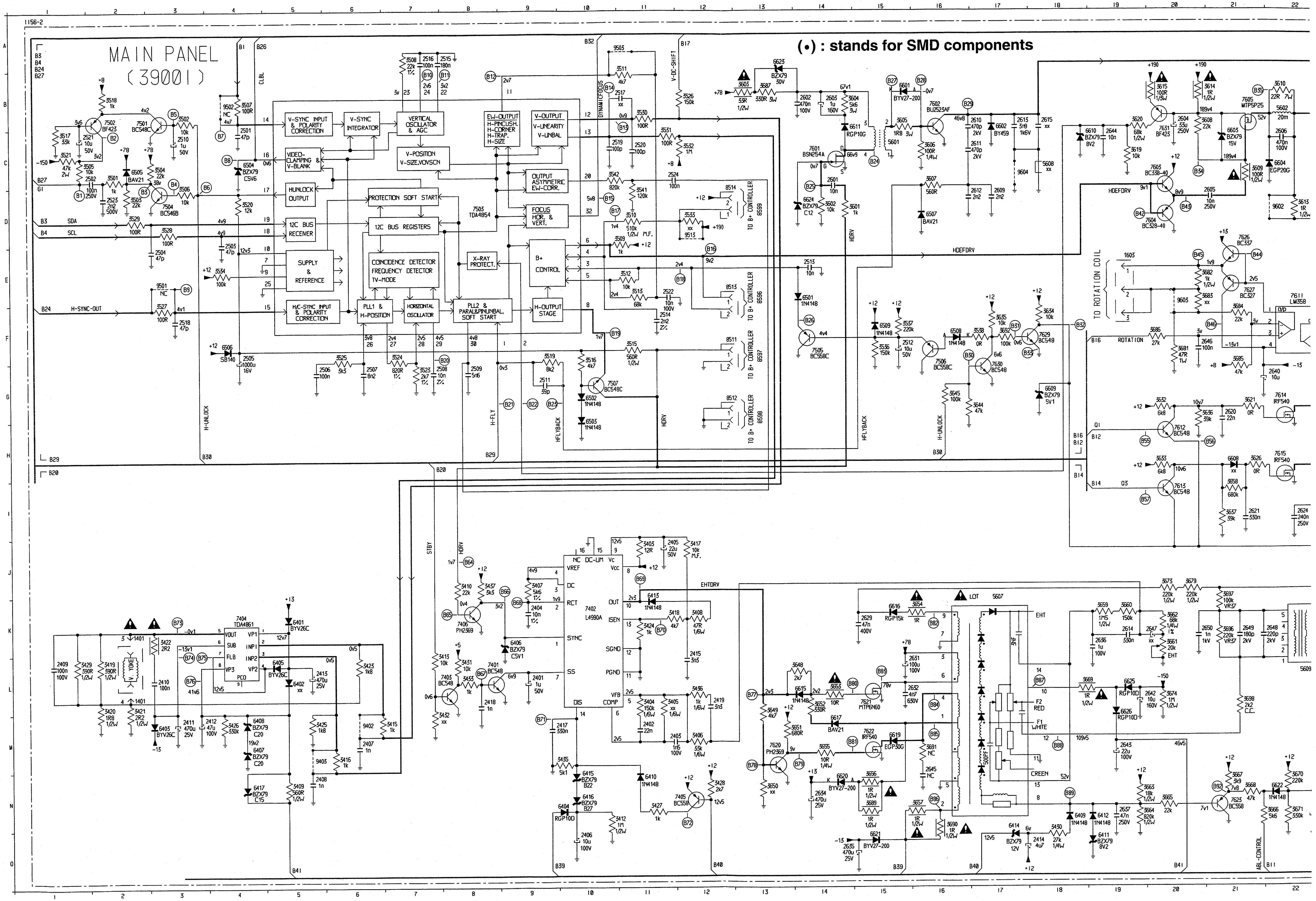

5 V/div AC
0.5 uS/div

C25 7102-B

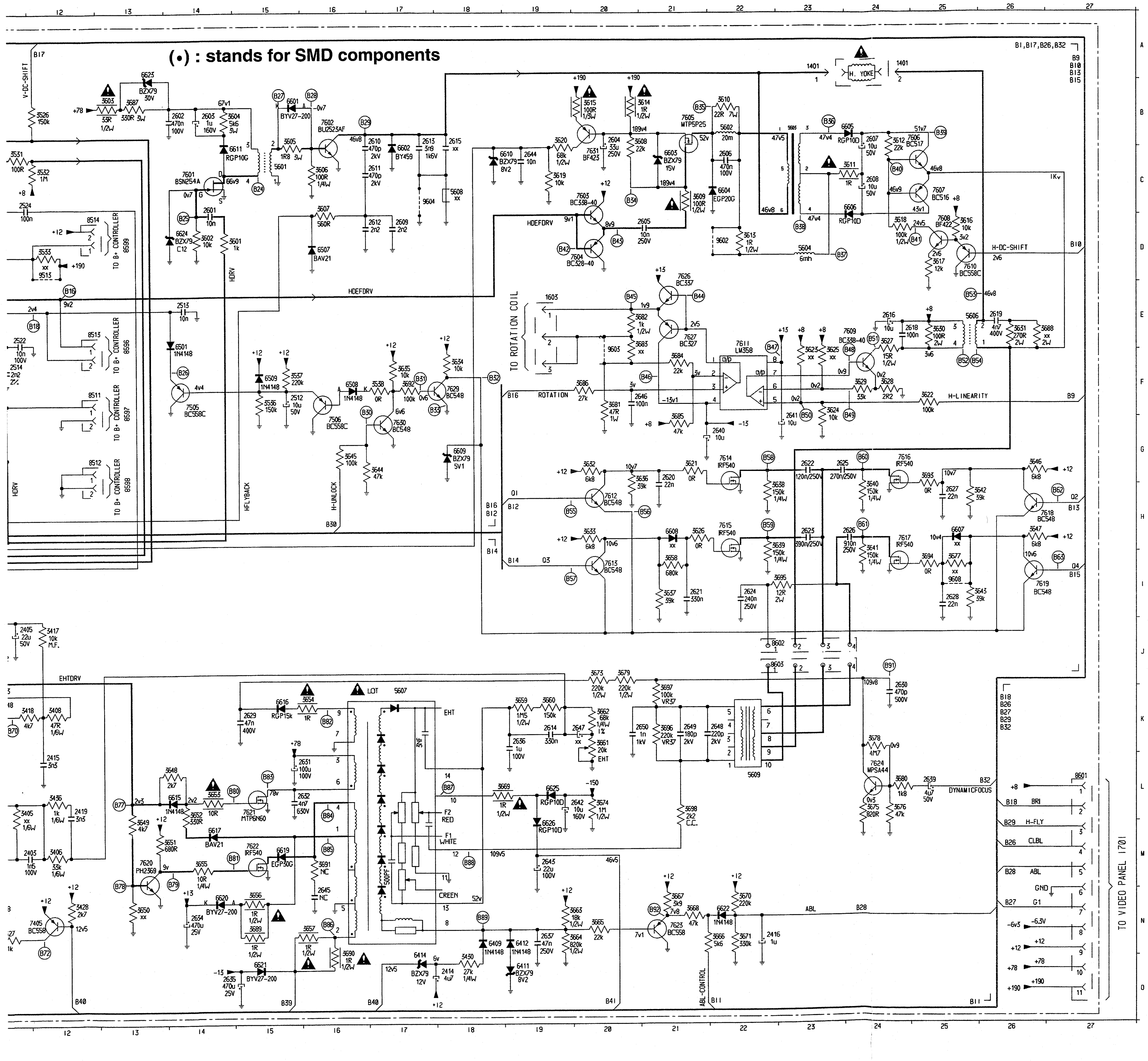

20 mV/div AC
5 uS/div

Deflection Schematic Diagram

B


MAIN PANEL
(39001)
(•) : stands for SMD components
V-SYNC INPUT & POLARITY CORRECTION
V-SYNC INTEGRATOR
VERTICAL OSCILLATOR & AGC
V-POSITION V-SIZE,VDVSCN
VIDEO-CLAMPING & V-BLANK
HUNLOCK OUTPUT
I2C BUS RECEIVER
SUPPLY & REFERENCE
H/C-SYNC INPUT & POLARITY CORRECTION
PROTECTION SOFT START
I2C BUS REGISTERS
COINCIDENCE DETECTOR FREQUENCY DETECTOR TV-MODE
PLL1 & H-POSITION
HORIZONTAL OSCILLATOR
PLL2 & PARAL&PINUNBAL. SOFT START
X-RAY PROTECT.
EW-OUTPUT H-PINCUSH. H-CORNER H-TRAP. H-SIZE
V-OUTPUT V-LINEARITY V-LINBAL
OUTPUT ASYMMETRIC EW-CORR.
FOCUS HOR. & VERT.
B+ CONTROL
H-OUTPUT STAGE
7503 TDA4854
7404 TDA4861
7402 L4990A
TO B+ CONTROLLER
TO ROTATION COIL
ROTATION
HDEFDRV
EHTDRV
LOT 5607
EHT
F2 RED
F1 WHITE
GREEN
ABL-CONTROL
H-SYNC-OUT
SDA
SCL
H-UNLOCK
H-FLY
HFLYBACK
HDRV
STBY
DYNAMIC FOCUS
V-DC-SHIFT
CLBL
YOKE
7611 LM358

(s) : stands for SMD components


(•) : stands for SMD components

1401	K 2
1401	L 2
1401	A23
1401	A24
1603	F19
1603	E19
1603	E19
2401	L 9
2402	M11
2403	M11
2404	K 9
2405	J11
2406	O10
2407	M 6
2408	N 5
2409	L 1
2410	L 3
2411	M 3
2412	M 4
2413	L 5
2414	O18
2415	L12
2416	N22
2417	M10
2418	L 8
2419	L12
2501	C 4
2502	C 2
2503	D 4
2504	E 3
2505	F 4
2506	G 6
2507	G 6
2508	G 8
2509	G 8
2510	C 3
2511	G 9
2512	F15
2513	E14
2514	F11
2515	A 8
2516	A 7
2517	B11
2518	F 3
2519	C11
2520	C11
2521	C 2
2522	E11
2523	D 2
2524	C11
2601	C14
2602	B14
2603	B14
2604	B20
2605	D21
2606	C22
2607	B24
2608	C24
2609	D17
2610	B17
2611	C17
2612	D17
2613	B17
2614	K19
2615	B18
2616	E24
2618	E25
2619	E26
2620	G21
2621	I21
2622	G23
2623	H23
2624	I22
2625	G23
2626	H24
2627	H25
2628	I25
2629	K15
2630	K24
2631	L16
2632	L16
2634	N14
2635	O14
2636	K19
2637	N19
2639	L25
2640	G22
2641	G23
2642	L20
2643	M19
2644	C19
2645	N16
2646	F21
2647	K20
2648	K22
2649	K21
2650	K21
3403	J11
3404	L11
3405	L11
3406	M12
3407	J 9
3408	K12
3409	N 5
3410	J 8
3412	N11
3413	L 8
3415	M 7
3416	M 6
3417	J12
3418	K11
3419	L 2
3420	L 2
3421	L 2
3422	K 3
3423	L 6
3424	K11
3425	M 5
3426	M 4
3427	N11
3428	N12
3429	L 1
3430	O18
3431	L 8
3432	M 8
3433	L 8
3435	M10
3436	L12
3437	J 8
3501	C 2
3502	B 3
3503	D 2
3504	C 3
3505	C 2
3506	D 3
3507	B 4
3508	A 7
3509	D11
3510	D11
3511	B11
3512	E11
3513	E11
3515	F11
3516	F10
3517	C 1
3518	B 2
3519	F 9
3520	D 4
3521	C 1
3523	G 7
3524	F 7
3525	F 6
3526	B12
3527	F 3
3528	D 3
3529	D 2
3530	B11
3531	C11
3532	C12
3533	D12
3534	E 4
3536	F15
3537	F15
3538	F17
3541	D11
3542	C10
3601	D15
3602	D14
3603	B13
3604	B15
3605	B15
3606	C16
3607	C16
3608	B21
3609	C21
3610	B22
3611	C24
3612	B24
3613	D22
3614	B21
3615	B20
3616	D25
3617	D25
3618	D24
3619	C19
3620	B19
3621	G21
3622	F25
3623	F23
3624	F23
3625	F23
3626	H21
3627	E24
3628	F24
3629	F24
3630	E25
3631	E26
3632	G20
3633	H20
3634	F18
3635	F17
3636	G21
3637	I21
3638	H23
3639	H23
3640	H24
3641	H24
3642	H26
3643	I26
3644	G17
3645	G16
3646	G26
3647	H26
3648	L14
3649	L13
3650	N13
3651	M14
3652	L14
3653	L14
3654	K16
3655	M14
3656	N15
3657	N16
3658	I21
3659	K19
3660	K19
3661	K20
3662	K20
3663	N20
3664	N20
3665	N20
3666	N22
3667	N21
3668	N21
3669	L18
3670	N22
3671	N22
3673	J20
3674	L20
3675	L24
3676	L24
3677	I25
3678	K24
3679	J20
3680	L24
3681	F20
3682	E21
3683	E21
3684	F21
3685	G21
3686	F20
3687	B13
3688	E27
3689	N15
3690	N16
3691	M16
3692	F17
3693	G25
3694	I25
3695	I23
3696	K21
3697	K21
3698	L21
5601	C15
5602	B22
5603	B23
5604	D23
5606	E25
5607	K17
5608	C18
5609	L22
6401	K 5
6402	L 5
6403	M 3
6404	N10
6405	L 5
6406	K 9
6407	M 4
6408	M 4
6409	N18
6410	N11
6411	O19
6412	N19
6413	K11
6414	N17
6415	N10
6416	N10
6417	N 4
6501	E14
6502	G10
6503	H10
6504	C 4
6505	C 2
6506	F 4
6507	D16
6508	F16
6509	F15
6601	B15
6602	C17
6603	C21
6604	C22
6605	B24
6606	C24
6607	H25
6608	H21
6609	G18
6610	C19
6611	C15
6615	L14
6616	K15
6617	M14
6619	M15
6620	N14
6621	O15
6622	N22
6623	A13
6624	D14
6625	L19
6626	M19
7401	L 8
7402	K10
7403	L 7
7404	K 4
7405	N12
7406	K 8
7501	B 3
7502	B 2
7503	D 8
7504	D 3
7505	F14
7506	G16
7507	G10
7601	C14
7602	B16
7603	C20
7604	D19
7605	B21
7606	B24
7607	C25
7608	D25
7609	E23
7610	D25
7611	E22
7612	H20
7613	I20
7614	G22
7615	H22
7616	G24
7617	H24
7618	H27
7619	I27
7620	M13
7621	L15
7622	M15
7623	N21
7624	L24
7626	D21
7627	E21
7629	F18
7630	G17
7631	C20
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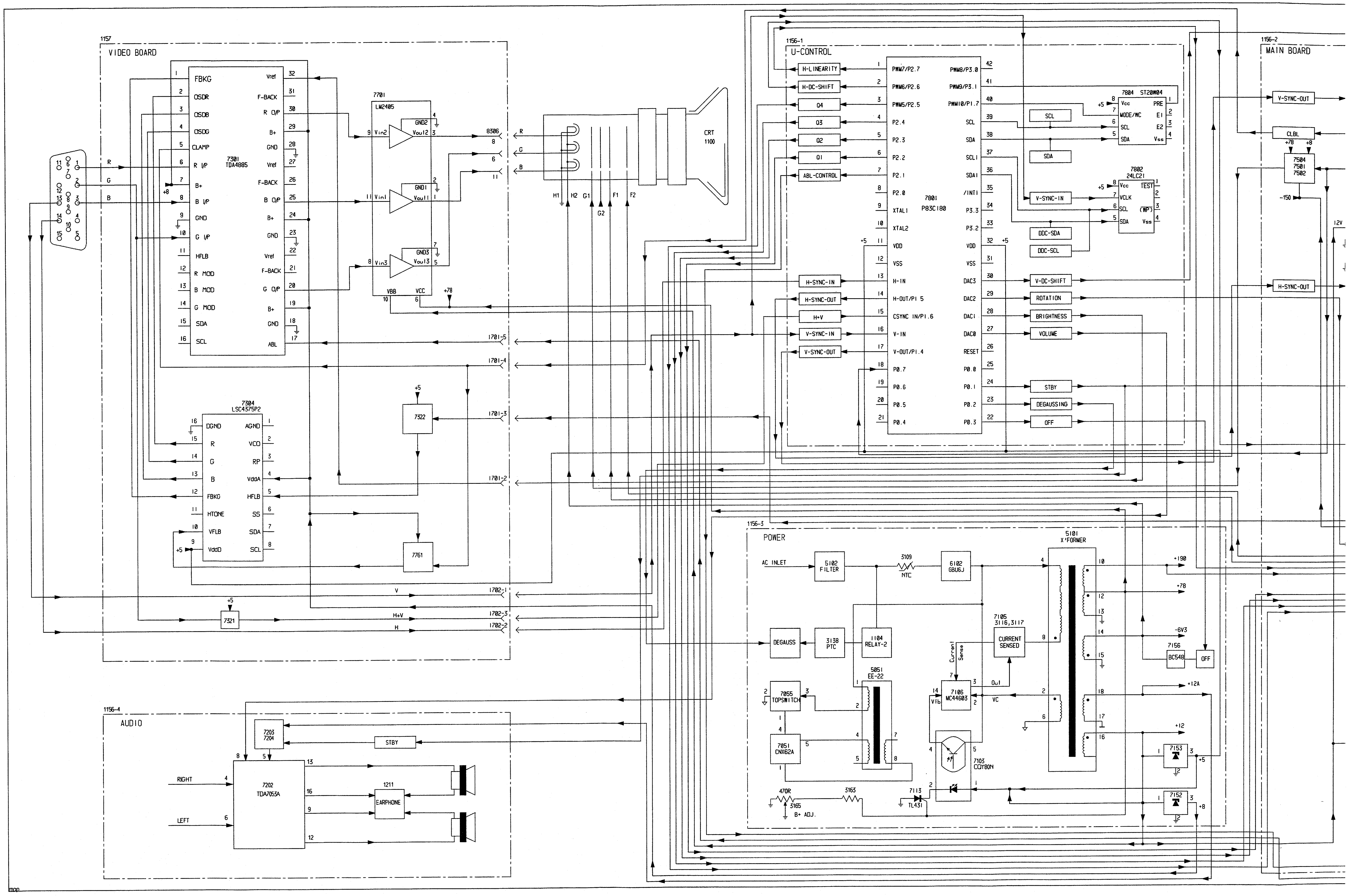
8511	F13
8512	G13
8512	G13
8513	E13
8513	E13
8514	D13
8514	D13
8601	L27
8601	L27
8601	O27
8601	O27
8601	N27
8601	N27
8601	N27
8601	M27
8601	M27
8601	M27
8601	L27
8602	J22
8602	J23
8602	J23
8602	J24
8603	J22
8603	J23
8603	J23
8603	J24
9402	M 6
9403	M 5
9501	E 3
9502	B 4
9503	A11
9513	D12
9602	D22
9603	F20
9604	C17
9608	I25

Block Diagram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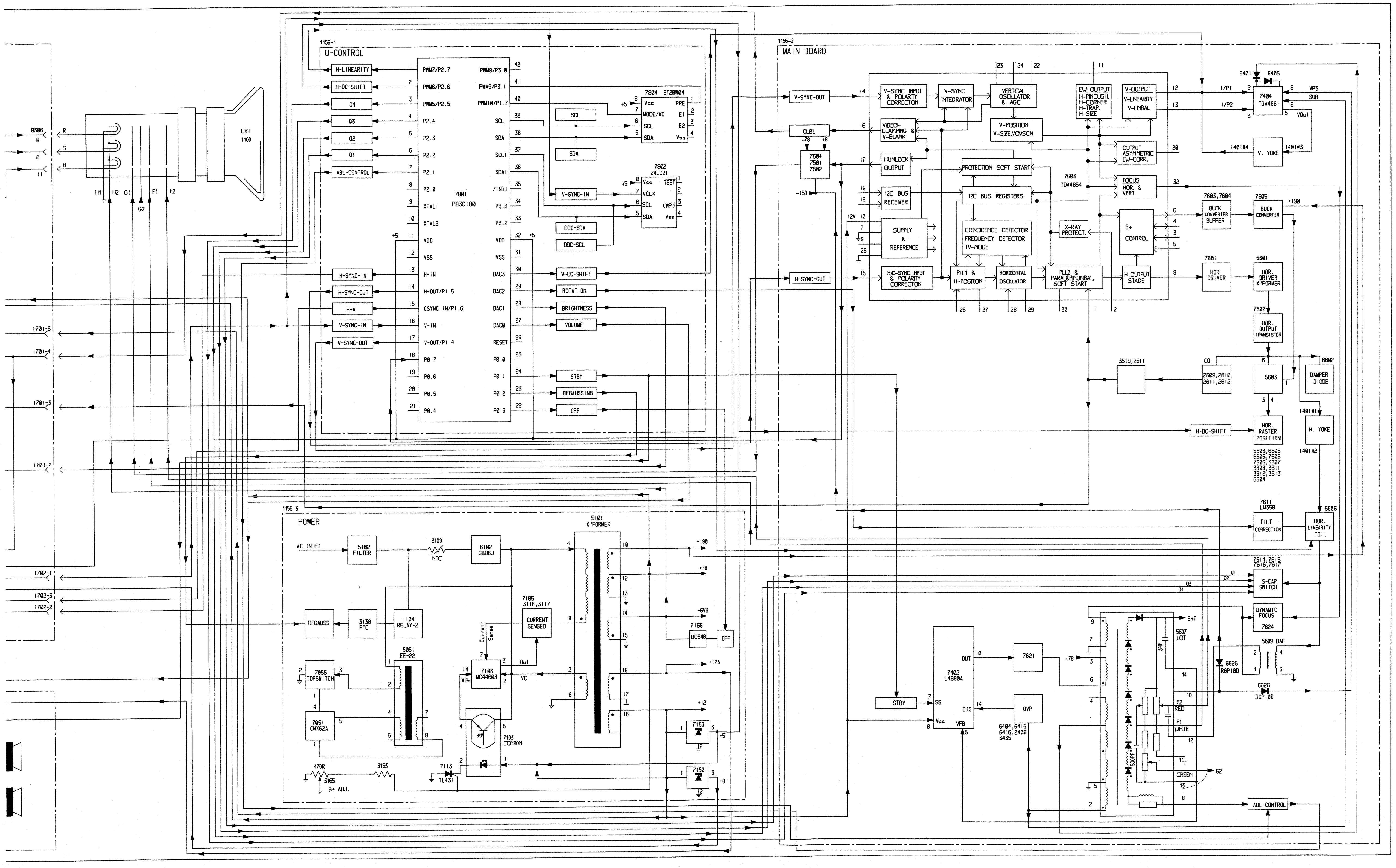
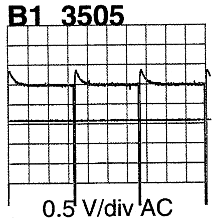
VIDEO BOARD
7301
TDA4885
FBKG
OSDR
OSDB
OSDG
CLAMP
R I/P
B+
B I/P
GND
G I/P
HFLB
R MOD
B MOD
G MOD
SDA
SCL
Vref
F-BACK
R O/P
B O/P
G O/P
ABL
7701
LM2405
Vin2
Vin1
Vin3
Vout2
Vout1
Vout3
GND1
GND2
GND3
VBB
VCC
+78
8306
R
G
B
CRT
1100
H1
H2
G1
G2
F1
F2
7304
LSC4375P2
DGND
AGND
VCO
RP
VddA
FBKG
HFLB
HTONE
SS
VFLB
SDA
VddD
SCL
7322
7761
7321
+5
+8
1701-5
1701-4
1701-3
1701-2
1702-1
1702-3
1702-2
V
H+V
H
1156-4
AUDIO
7203
7204
STBY
7202
TDA7053A
RIGHT
LEFT
1211
EARPHONE
1156-1
U-CONTROL
H-LINEARITY
H-DC-SHIFT
04
03
02
01
ABL-CONTROL
7801
P83C180
PWM7/P2.7
PWM6/P2.6
PWM5/P2.5
P2.4
P2.3
P2.2
P2.1
P2.0
XTAL1
XTAL2
VDD
VSS
H-IN
H-OUT/P1.5
CSYNC IN/P1.6
V-IN
V-OUT/P1.4
P0.7
P0.6
P0.5
P0.4
PWM8/P3.0
PWM9/P3.1
PWM10/P1.7
SCL
SDA
SCL1
SDA1
/INT1
P3.3
P3.2
DAC3
DAC2
DAC1
DAC0
RESET
P0.0
P0.1
P0.2
P0.3
H-SYNC-IN
H-SYNC-OUT
H+V
V-SYNC-IN
V-SYNC-OUT
SCL
SDA
V-SYNC-IN
DDC-SDA
DDC-SCL
V-DC-SHIFT
ROTATION
BRIGHTNESS
VOLUME
STBY
DEGAUSSING
OFF
7804 ST20W04
Vcc
MODE/WC
SCL
SDA
PRE
E1
E2
Vss
7802
24LC21
TEST
VCLK
(WP)
1156-2
MAIN BOARD
V-SYNC-OUT
CLBL
7504
7501
7502
-150
H-SYNC-OUT
12V
1156-3
POWER
AC INLET
5102
FILTER
3109
NTC
6102
GBU6J
5101
X'FORMER
+190
+78
-6V3
7156
BC548
OFF
+12A
+12
+5
+8
7153
7152
DEGAUSS
3138
PTC
1104
RELAY-2
7105
3116,3117
CURRENT
SENSED
Current Sense
Out
VC
Vfb
7106
MC44603
5051
EE-22
7055
TOPSWITCH
7051
CNX62A
7103
CQY80N
7113
TL431
470R
3165
3163
B+ ADJ.
mop

Block Diagram


8306
R
G
B
8
6
11
CRT
1100
H1
H2
G1
F1
F2
G2
1701-5
1701-4
1701-3
1701-2
1702-1
1702-3
1702-2
1156-1
U-CONTROL
H-LINEARITY
H-DC-SHIFT
04
03
02
01
ABL-CONTROL
H-SYNC-IN
H-SYNC-OUT
H+V
V-SYNC-IN
V-SYNC-OUT
7801
P83C180
PWM7/P2.7
PWM6/P2.6
PWM5/P2.5
P2.4
P2.3
P2.2
P2.1
P2.0
XTAL1
XTAL2
VDD
VSS
H-IN
H-OUT/P1.5
CSYNC IN/P1.6
V-IN
V-OUT/P1 4
P0 7
P0.6
P0.5
P0.4
PWM8/P3 0
PWM9/P3.1
PWM10/P1.7
SCL
SDA
SCL1
SDA1
/INT1
P3.3
P3.2
VDD
VSS
DAC3
DAC2
DAC1
DAC0
RESET
P0.0
P0.1
P0.2
P0.3
+5
SCL
SDA
7804 ST20W04
Vcc
MODE/WC
SCL
SDA
PRE
E1
E2
Vss
7802
24LC21
Vcc
VCLK
SCL
SDA
TEST
(WP)
Vss
V-SYNC-IN
DDC-SDA
DDC-SCL
V-DC-SHIFT
ROTATION
BRIGHTNESS
VOLUME
STBY
DEGAUSSING
OFF
1156-2
MAIN BOARD
V-SYNC-OUT
CLBL
+78
+8
7504
7501
7502
-150
12V
H-SYNC-OUT
V-SYNC INPUT & POLARITY CORRECTION
V-SYNC INTEGRATOR
VERTICAL OSCILLATOR & AGC
VIDEO-CLAMPING & V-BLANK
V-POSITION V-SIZE,VOVSCN
HUNLOCK OUTPUT
PROTECTION SOFT START
12C BUS RECEIVER
12C BUS REGISTERS
SUPPLY & REFERENCE
COINCIDENCE DETECTOR FREQUENCY DETECTOR TV-MODE
H/C-SYNC INPUT & POLARITY CORRECTION
PLL1 & H-POSITION
HORIZONTAL OSCILLATOR
PLL2 & PARAL&PINUNBAL. SOFT START
EW-OUTPUT H-PINCUSH. H-CORNER H-TRAP. H-SIZE
V-OUTPUT V-LINEARITY V-LINBAL
OUTPUT ASYMMETRIC EW-CORR.
7503
TDA4854
FOCUS HOR. & VERT.
X-RAY PROTECT.
B+ CONTROL
H-OUTPUT STAGE
6401
6405
I/P1
I/P2
7404
TDA4861
VP3
SUB
VOut
1401#4
1401#3
V. YOKE
7603,7604
BUCK CONVERTER BUFFER
7605
BUCK CONVERTER
+190
7601
HOR. DRIVER
5601
HOR. DRIVER X'FORMER
7602
HOR. OUTPUT TRANSISTOR
3519,2511
CO
2609,2610 2611,2612
5603
6602
DAMPER DIODE
1401#1
H. YOKE
1401#2
H-DC-SHIFT
HOR. RASTER POSITION
5603,6605 6606,7606 7606,3607 3608,3611 3612,3613 5604
7611
LM358
TILT CORRECTION
5606
HOR. LINEARITY COIL
7614,7615 7616,7617
S-CAP SWITCH
01
02
03
04
DYNAMIC FOCUS
7624
EHT
5607
LOT
3NF
500PF
5609 DAF
6625
RGP10D
6626
RGP10D
F2
RED
F1
WHITE
CREEN
G2
ABL-CONTROL
STBY
7402
L4990A
OUT
SS
DIS
Vcc
VFB
7621
+78
OVP
6404,6415 6416,2406 3435
1156-3
POWER
AC INLET
5102 FILTER
3109
NTC
6102 GBU6J
5101
X'FORMER
+190
+78
-6V3
+12A
+12
+5
+8
DEGAUSS
3138 PTC
1104 RELAY-2
7105
3116,3117
CURRENT SENSED
Current Sense
Out
VC
Vfb
7106
MC44603
7055 TOPSWITCH
7051 CNX62A
5051
EE-22
7156
BC548
OFF
7153
7152
7103
CQY80N
7113
TL431
470R
3165
3163
B+ ADJ.

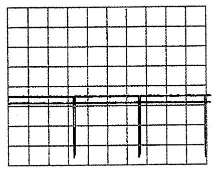
Waveforms for Diagram B and D

B1 3505



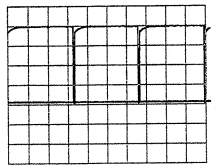
0.5 V/div AC
5 mS/div

B2 7502



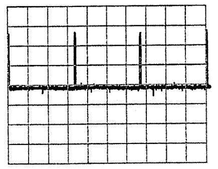
10 V/div AC
5 mS/div

B3 6505-P



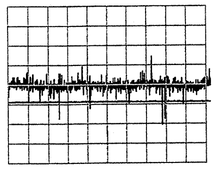
10 V/div AC
5 mS/div

B4 7504-B



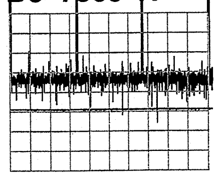
0.2 V/div AC
5 mS/div

B5 7501-B



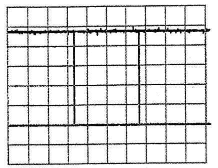
0.2 V/div AC
5 mS/div

B6 7503-17



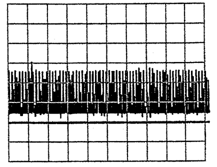
0.1 V/div AC
5 mS/div

B7 7503-14



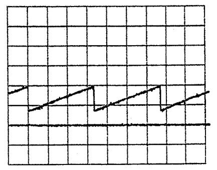
1 V/div AC
5 mS/div

B8 7500-11



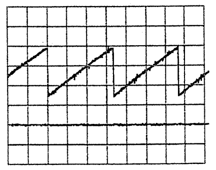
1 V/div AC
5 mS/div

B9 7503-15



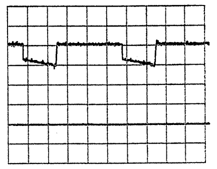
2 V/div AC
5 uS/div

B10 7503-24



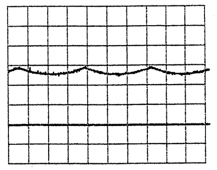
1 V/div AC
5 mS/div

B11 7503-22



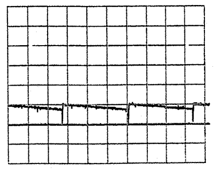
1 V/div AC
10 mS/div

B12 7503-11



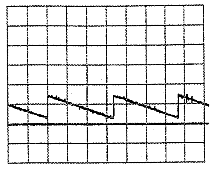
1 V/div AC
5 mS/div

B13 7503-12



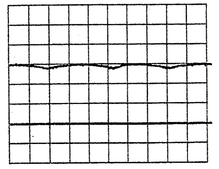
1 V/div AC
5 mS/div

B14 7503-13



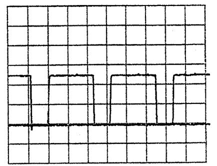
1 V/div AC
5 mS/div

B15 7503-32



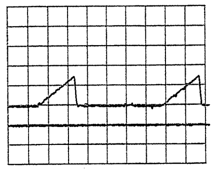
2 V/div AC
5 muS/div

B16 7503-6



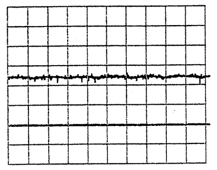
5 V/div AC
10 uS/div

B17 7503-4



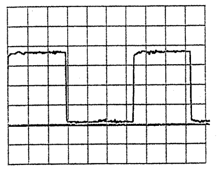
1 V/div AC
5 uS/div

B18 7503-3



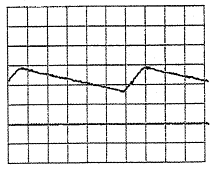
1 V/div AC
10 mS/div

B19 7503-8



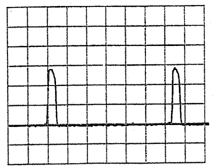
1 V/div AC
5 uS/div

B20 7503-29



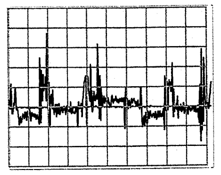
2 V/div AC
5 uS/div

B21 7503-1



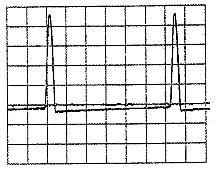
2 V/div AC
5 uS/div

B22 7503-2



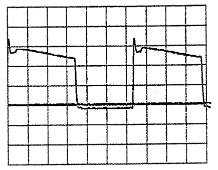
50 mV/div AC
5 uS/div

B23 3519



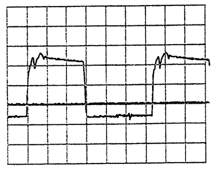
10 V/div AC
5 uS/div

B24 7601-D



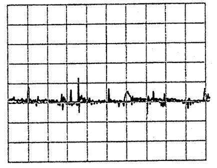
50 V/div AC
5 uS/div

B25 7601-G



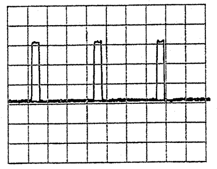
1 V/div AC
5 uS/div

B26 7505-e



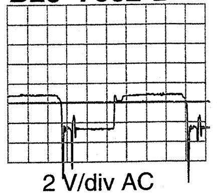
10 mV/div AC
5 uS/div

B27 5601-2



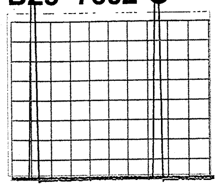
2 V/div AC
5 uS/div

B28 7602-B



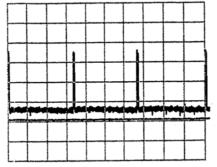
2 V/div AC
5 uS/div

B29 7602-C



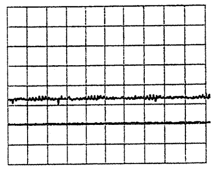
100 V/div AC
5 uS/div

B30 7630-B



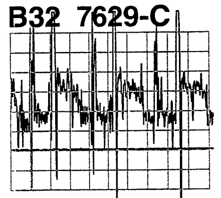
0.1 V/div AC
5 mS/div

B31 7629-B



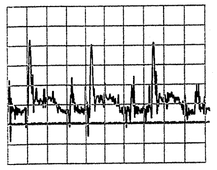
0.5 V/div AC
0.2 mS/div

B32 7629-C



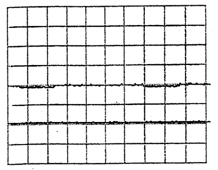
20 mV/div AC
10 uS/div

B33 7629-E



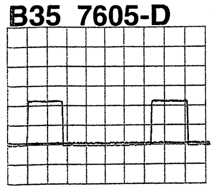
50 mV/div AC
10 uS/div

B34 7605-G



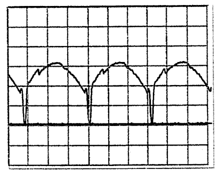
100 V/div AC
5 uS/div

B35 7605-D



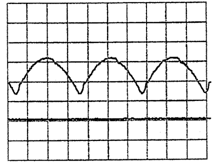
100 V/div AC
5 uS/div

B36 5603-3



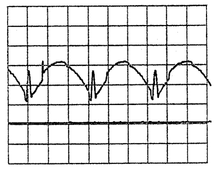
20 V/div AC
10 uS/div

B37 5603-2



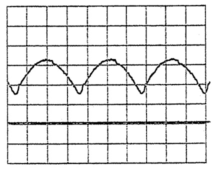
20 V/div AC
10 uS/div

B38 5603-4



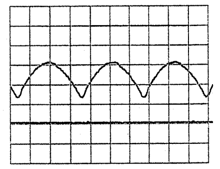
20 V/div AC
10 uS/div

B39 7606-C



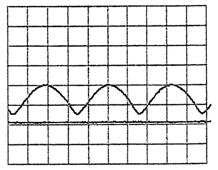
20 V/div AC
10 uS/div

B40 7606-B



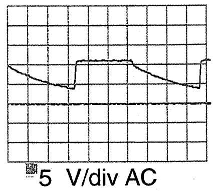
20 V/div AC
10 uS/div

B41 7608-C



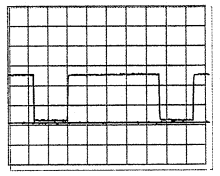
20 V/div AC
10 uS/div

B42 7603-B



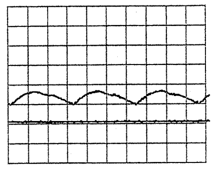
5 V/div AC
5 uS/div

B43 7603-E



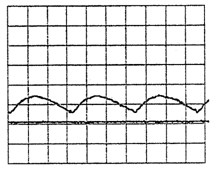
5 V/div AC
5 uS/div

B44 7626-B



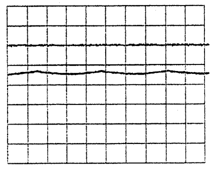
2 V/div AC
10 uS/div

B45 7626-E



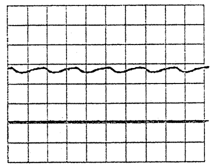
2 V/div AC
10 uS/div

B46 7627-C



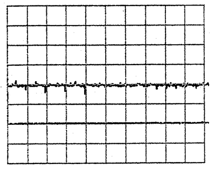
10 V/div AC
5 mS/div

B47 7611-8



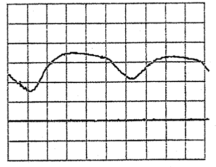
5 V/div AC
5 mS/div

B48 7609-B



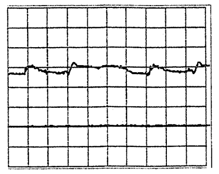
0.5 V/div AC
50 uS/div

B49 7611-6



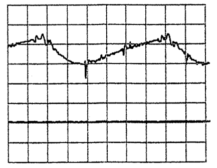
0.1 V/div AC
2 uS/div

B50 7611-5



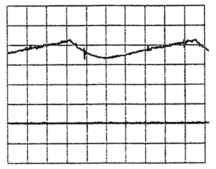
0.1 V/div AC
5 uS/div

B51 7609-C



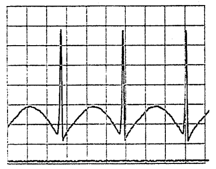
0.5 V/div AC
5 uS/div

B52 5606-4



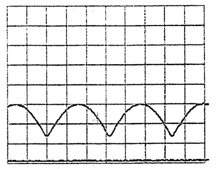
10 V/div AC
5 uS/div

B53 5606-2



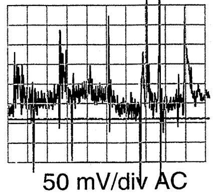
20 V/div AC
10 uS/div

B54 5606-1



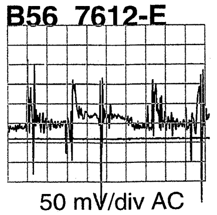
20 V/div AC
10 uS/div

B55 7612-B



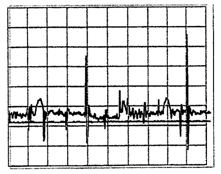
50 mV/div AC
5 uS/div

B56 7612-E



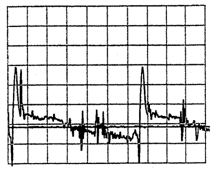
50 mV/div AC
5 uS/div

B57 7613-B



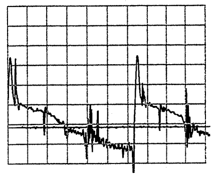
0.1 V/div AC
5 uS/div

B58 7614-D



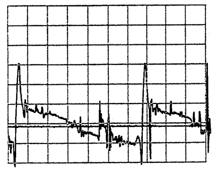
0.1 V/div AC
5 uS/div

B59 7615-D



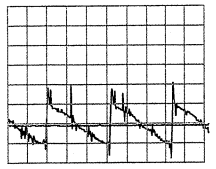
0.1 V/div AC
5 uS/div

B60 7616-D



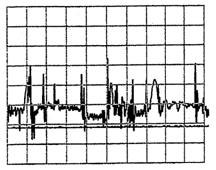
0.1 V/div AC
5 uS/div

B61 7617-D



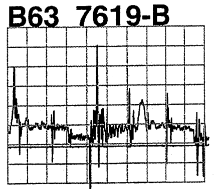
0.2 V/div AC
10 uS/div

B62 7618-B



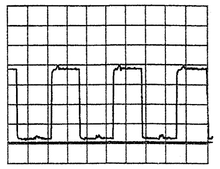
50 mV/div AC
5 uS/div

B63 7619-B



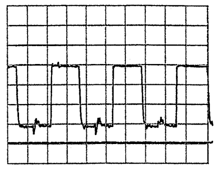
50 mV/div AC
5 uS/div

B64 3410



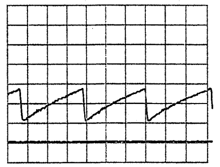
1 V/div AC
10 uS/div

B65 7406-B



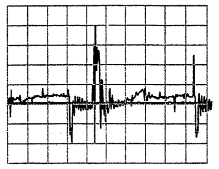
0.2 V/div AC
10 uS/div

B66 7402-1



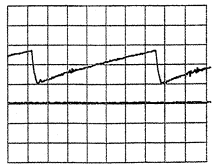
1 V/div AC
10 uS/div

B67 7401-B



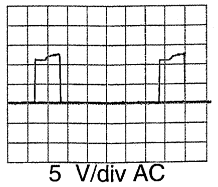
50 m V/div AC
5 uS/div

B68 7402-2



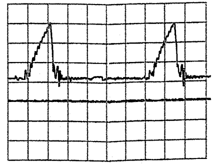
1 V/div AC
5 uS/div

B69 7402-10



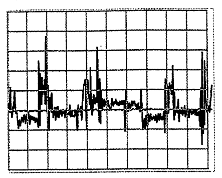
5 V/div AC
5 uS/div

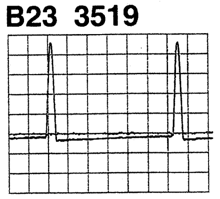
B70 7402-13

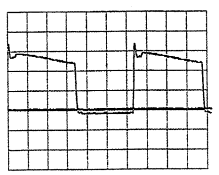


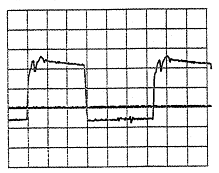
0.1 V/div AC
5 uS/div

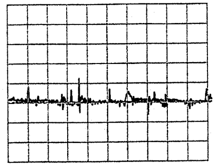
Waveforms for Diagram B and D

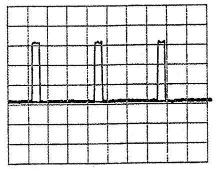
B22 7503-2

50 mV/div AC
5 uS/div

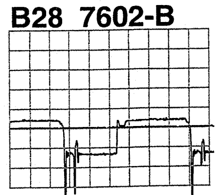
B23 3519

10 V/div AC
5 uS/div

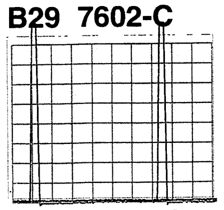
B24 7601-D

50 V/div AC
5 uS/div

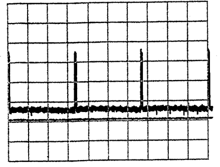
B25 7601-G

1 V/div AC
5 uS/div

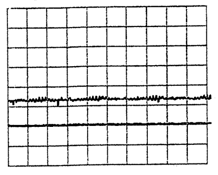
B26 7505-e

10 mV/div AC
5 uS/div

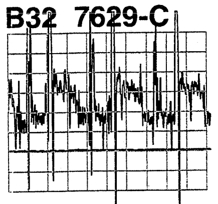
B27 5601-2

2 V/div AC
5 uS/div

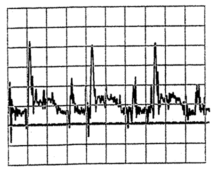
B28 7602-B

2 V/div AC
5 uS/div

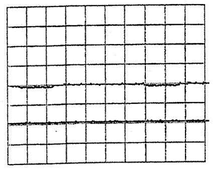
B29 7602-C

100 V/div AC
5 uS/div

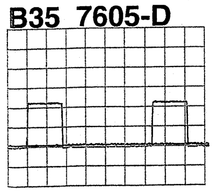
B30 7630-B

0.1 V/div AC
5 mS/div

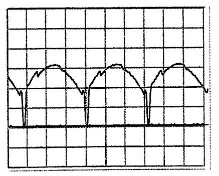
B31 7629-B

0.5 V/div AC
0.2 mS/div

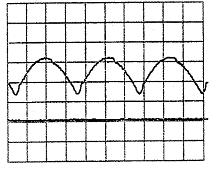
B32 7629-C

20 mV/div AC
10 uS/div

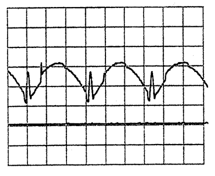
B33 7629-E

50 mV/div AC
10 uS/div

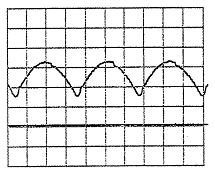
B34 7605-G

100 V/div AC
5 uS/div

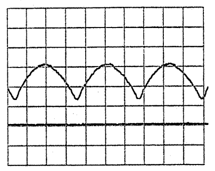
B35 7605-D

100 V/div AC
5 uS/div

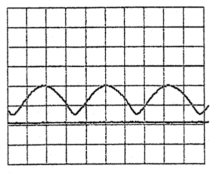
B36 5603-3

20 V/div AC
10 uS/div

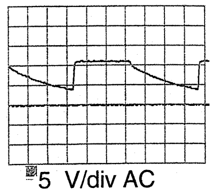
B37 5603-2

20 V/div AC
10 uS/div

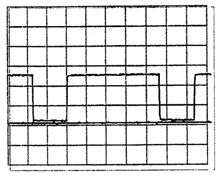
B38 5603-4

20 V/div AC
10 uS/div

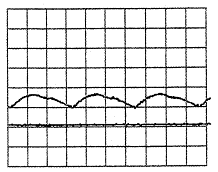
B39 7606-C

20 V/div AC
10 uS/div

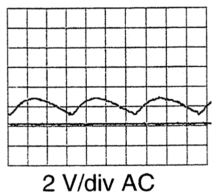
B40 7606-B

20 V/div AC
10 uS/div

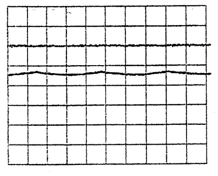
B41 7608-C

20 V/div AC
10 uS/div

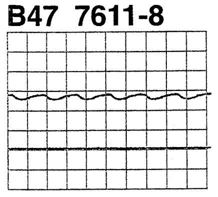
B42 7603-B

5 V/div AC
5 uS/div

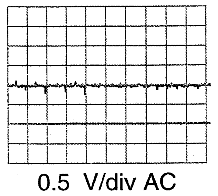
B43 7603-E

5 V/div AC
5 uS/div

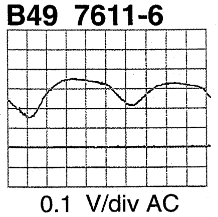
B44 7626-B

2 V/div AC
10 uS/div

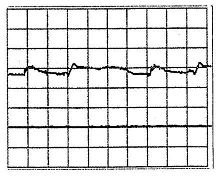
B45 7626-E

2 V/div AC
10 uS/div

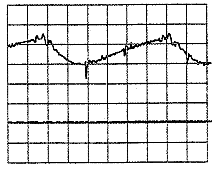
B46 7627-C

10 V/div AC
5 mS/div

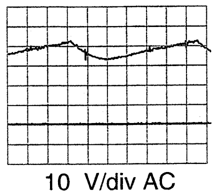
B47 7611-8

5 V/div AC
5 mS/div

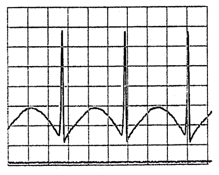
B48 7609-B

0.5 V/div AC
50 uS/div

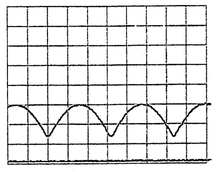
B49 7611-6

0.1 V/div AC
2 uS/div

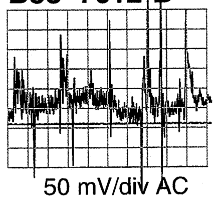
B50 7611-5

0.1 V/div AC
5 uS/div

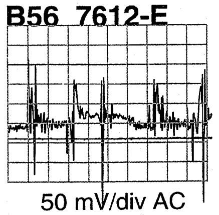
B51 7609-C

0.5 V/div AC
5 uS/div

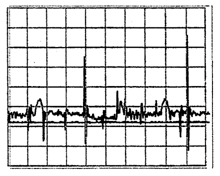
B52 5606-4

10 V/div AC
5 uS/div

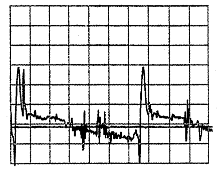
B53 5606-2

20 V/div AC
10 uS/div

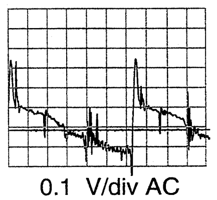
B54 5606-1

20 V/div AC
10 uS/div

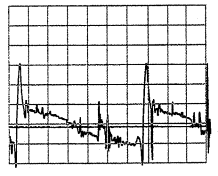
B55 7612-B

50 mV/div AC
5 uS/div

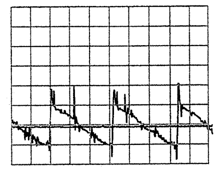
B56 7612-E

50 mV/div AC
5 uS/div

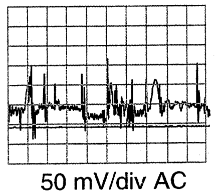
B57 7613-B

0.1 V/div AC
5 uS/div

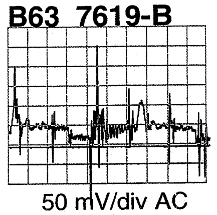
B58 7614-D

0.1 V/div AC
5 uS/div

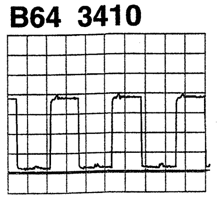
B59 7615-D

0.1 V/div AC
5 uS/div

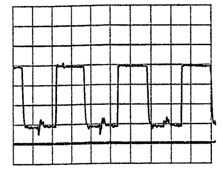
B60 7616-D

0.1 V/div AC
5 uS/div

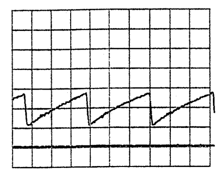
B61 7617-D

0.2 V/div AC
10 uS/div

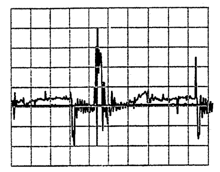
B62 7618-B

50 mV/div AC
5 uS/div

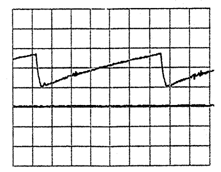
B63 7619-B

50 mV/div AC
5 uS/div

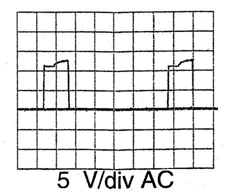
B64 3410

1 V/div AC
10 uS/div

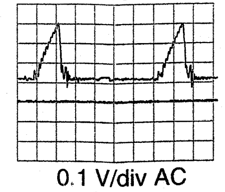
B65 7406-B

0.2 V/div AC
10 uS/div

B66 7402-1

1 V/div AC
10 uS/div

B67 7401-B

50 m V/div AC
5 uS/div

B68 7402-2

1 V/div AC
5 uS/div

B69 7402-10

5 V/div AC
5 uS/div

B70 7402-13

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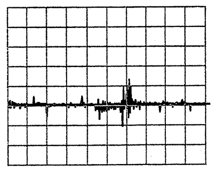
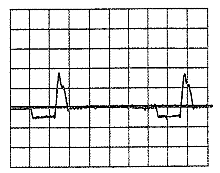
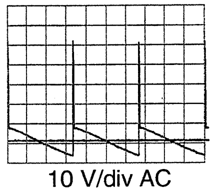
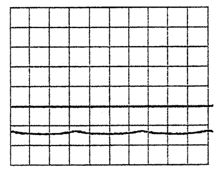
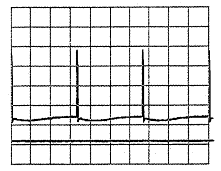
5 uS/div

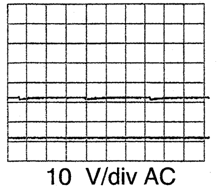
B71 7402-14

0.1 V/div AC
5 uS/div

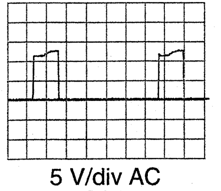
B72 7405-C

10 mV/div AC
5 uS/div

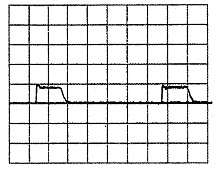
B73 7404-5

10 V/div AC
5 mS/div

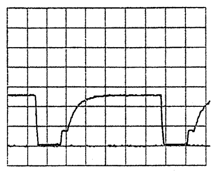
B74 7404-6

10 V/div AC
5 mS/div

B75 7404-7

10 V/div AC
5 mS/div

B76 7404-8

10 V/div AC
5 mS/div

B77 6615-N

5 V/div AC
5 uS/div

B78 7620-B

1 V/div AC
5 uS/div

B79 7620-C

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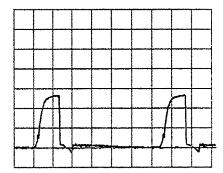
5 uS/div

B80 7621-G

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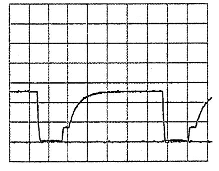
5 uS/div

B81 7622-G

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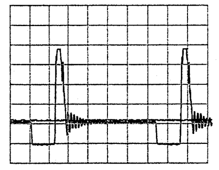
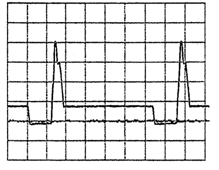
5 uS/div

B82 5607-9

100 V/div AC
5 uS/div

B83 5607-6

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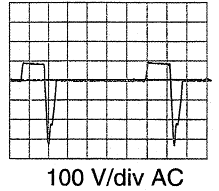
5 uS/div

B84 5607-4

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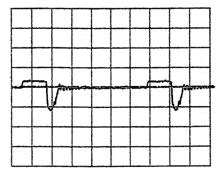
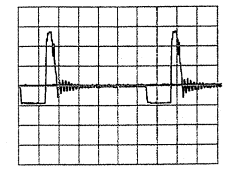
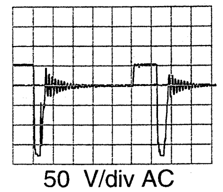
5 uS/div

B85 7805-40

50 V/div AC
5 uS/div

B86 7805-41

20 V/div AC
5 uS/div

B87 5607-10

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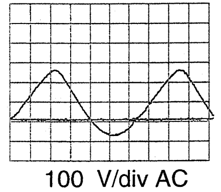
5 uS/div

B88 5607-12

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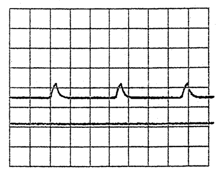
5 uS/div

B89 5607-8

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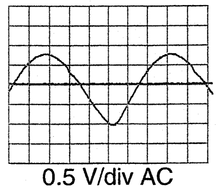
5 mS/div

B90 5609-4

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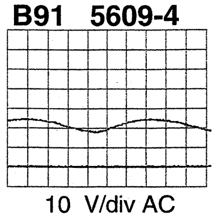
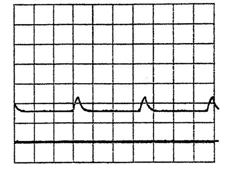
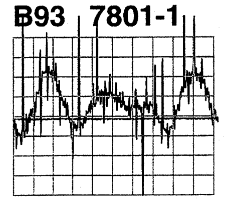

10 V/div AC
5 uS/div

B92 7624-C

5 V/div AC
5 mS/div

B93 7801-1

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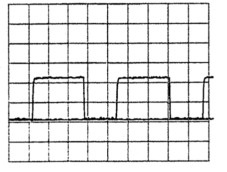
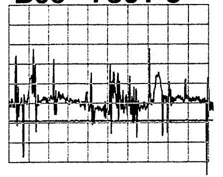
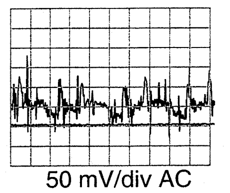
20 uS/div

B94 7801-2

2 V/div AC
20 uS/div

B95 7801-3

50 mV/div AC
5 uS/div

B96 7801-4

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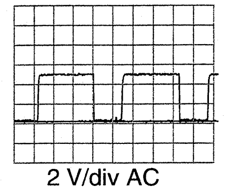
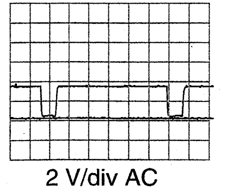
10 uS/div

B97 7801-7

2 V/div AC
20 uS/div

B98 7801-13

2 V/div AC
5 uS/div

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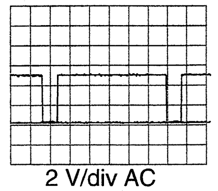
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5 uS/div

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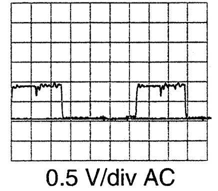
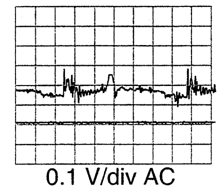

0.5 V/div AC
5 uS/div

B101 7801-34

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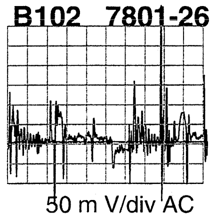
5 uS/div

B102 7801-26

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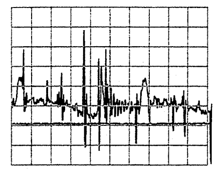
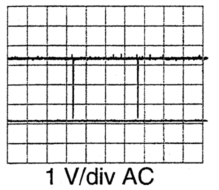
5 uS/div

B103 7801-23

50 mV/div AC
5 uS/div

B104 7802-7

1 V/div AC
5 mS/div

Main Panel C.B.A. (B,C,D,I)

9814 F 3	7626 D 4	6404 E 10	3686 D 2	3518 F 5	3122 J 8	2510 F 4	1101 H 13
9815 H 2	7627 D 4	6405 D 6	3687 A 7	3519 E 1	3123 J 7	2511 D 1	1103 J 10
9816 H 2	7629 B 2	6406 D 13	3688 B 6	3520 D 2	3125 J 8	2512 C 1	1104 F 12
9817 B 3	7630 B 2	6407 E 6	3689 D 9	3521 F 5	3126 J 7	2513 D 1	1105 J 1
9818 E 2	7631 D 9	6408 E 5	3690 D 9	3523 B 1	3129 J 8	2514 D 1	1106 J 2
9820 F 4	7801 F 2	6409 C 13	3691 D 10	3524 C 1	3130 F 11	2515 C 2	1110 G 5
9821 G 1	7802 I 1	6410 D 13	3692 B 2	3525 B 1	3131 I 7	2516 C 2	1112 H 11
9822 F 1	7803 H 1	6411 C 12	3693 B 4	3526 D 2	3132 J 8	2517 D 2	1114 H 13
9823 E 2	7804 I 2	6412 C 12	3694 C 4	3527 E 2	3133 I 6	2518 D 2	1115 F 13
9824 G 2	7805 H 1	6413 E 12	3695 B 6	3528 C 3	3134 J 5	2519 C 2	1201 B 3
9825 I 1	8001 G 4	6414 C 13	3696 B 12	3529 C 3	3135 H 2	2520 D 2	1203 A 2
9826 H 2	8512 D 3	6415 E 13	3697 A 12	3530 D 2	3136 I 6	2521 F 5	1204 A 1
9830 H 3	8513 D 2	6416 E 13	3698 A 11	3531 D 2	3137 I 5	2522 D 2	1205 A 3
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9832 B 3	8601 F 8	6418 E 10	3802 H 3	3533 E 2	3139 F 8	2524 C 1	1207 A 3
9833 C 3	8602 B 6	6501 C 1	3803 G 1	3534 C 3	3140 J 5	2601 A 6	1401 B 7
9834 C 3	8603 B 13	6502 C 4	3804 G 3	3536 C 1	3142 I 5	2602 A 7	1603 E 4
9836 H 2	8801 F 3	6503 C 4	3805 G 3	3537 E 1	3143 I 6	2603 B 7	1801 F 2
9837 G 1	9001 I 4	6504 D 2	3806 G 3	3538 B 2	3144 I 5	2604 E 10	1802 H 1
9838 F 1	9101 J 11	6505 F 6	3807 F 3	3541 B 1	3145 I 6	2605 E 8	2051 J 3
9839 G 2	9102 I 12	6506 D 3	3808 F 3	3542 C 1	3146 I 6	2606 D 8	2052 J 4
9843 G 4	9103 J 12	6507 D 1	3809 F 3	3601 A 6	3157 G 4	2607 D 7	2054 I 3
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	9105 J 5	6509 E 1	3811 F 3	3603 A 6	3159 G 6	2609 E 7	2056 H 5
	9106 G 5	6601 B 8	3812 F 2	3604 B 7	3160 G 10	2610 D 8	2057 H 4
	9107 H 11	6602 D 9	3813 I 1	3605 B 8	3161 F 10	2611 E 8	2101 G 12
	9109 H 10	6603 E 10	3814 G 2	3606 B 9	3162 H 6	2612 E 7	2102 F 13
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	9111 I 7	6605 E 7	3816 G 1	3608 D 9	3164 F 8	2614 A 10	2104 G 11
	9112 J 9	6606 E 7	3817 G 3	3609 E 9	3165 G 6	2615 D 9	2105 I 10
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	9812 G 4	7623 B 12	6402 D 6	3684 D 4	3516 C 4	3120 I 10	2508 C 1
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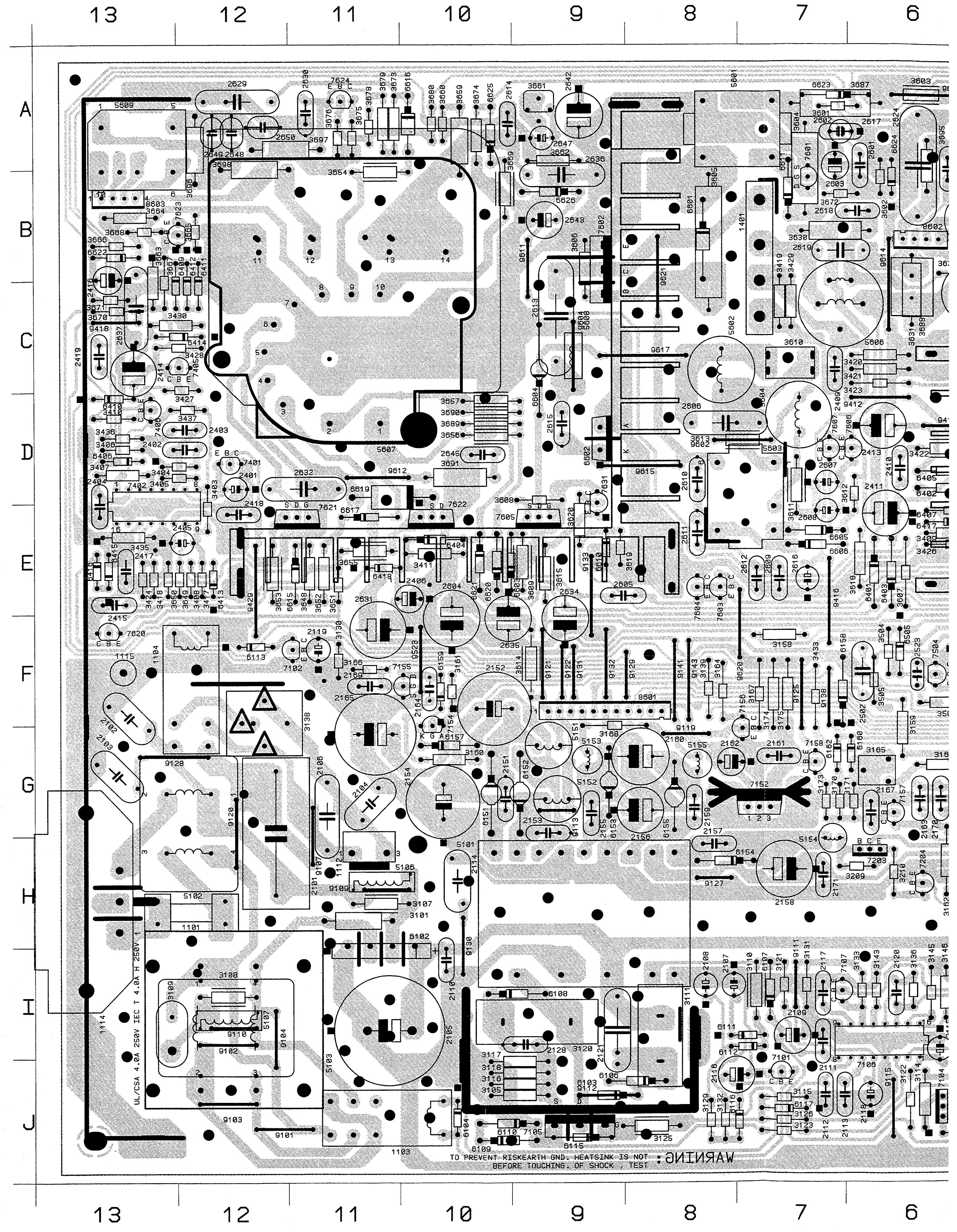
13
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A
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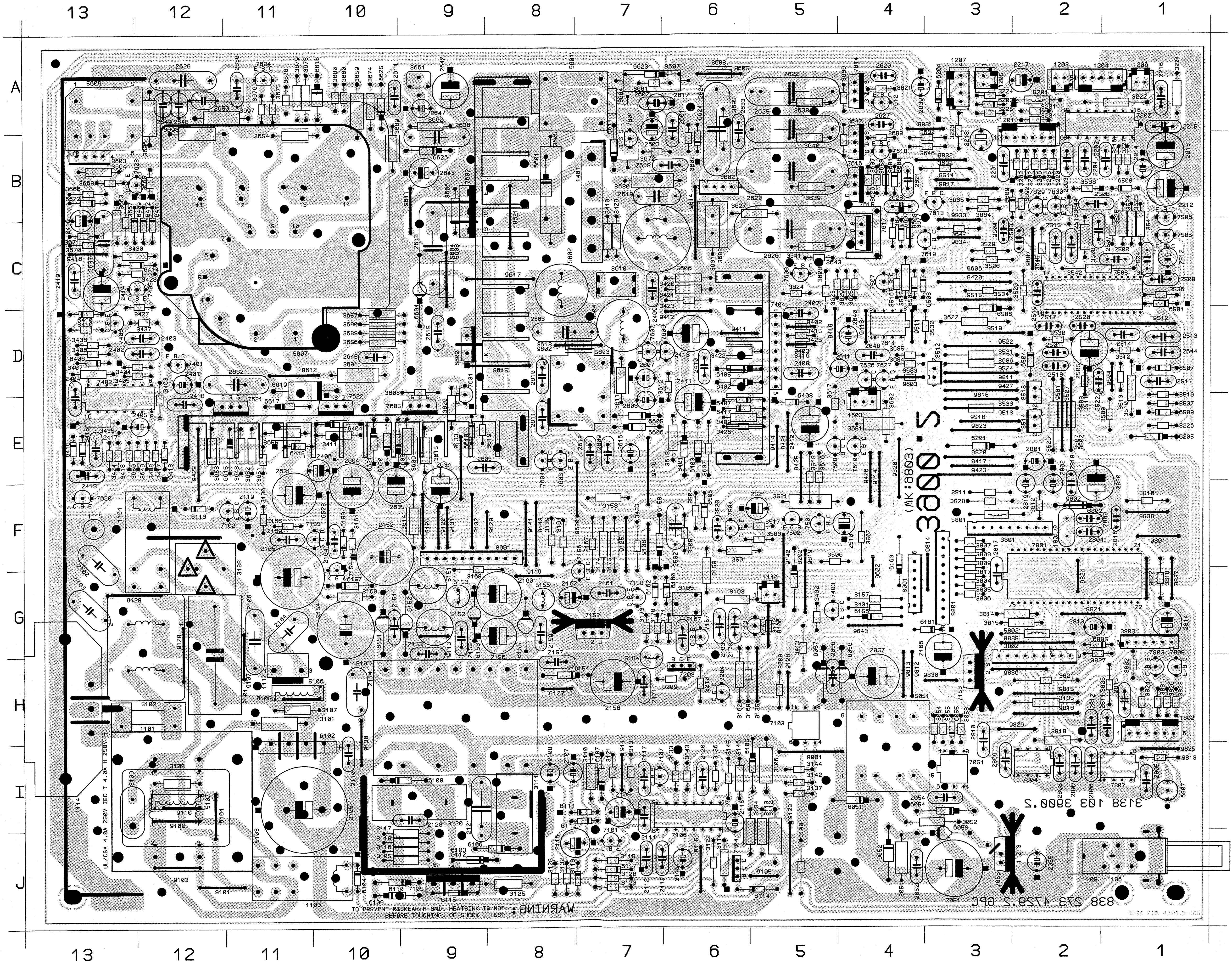
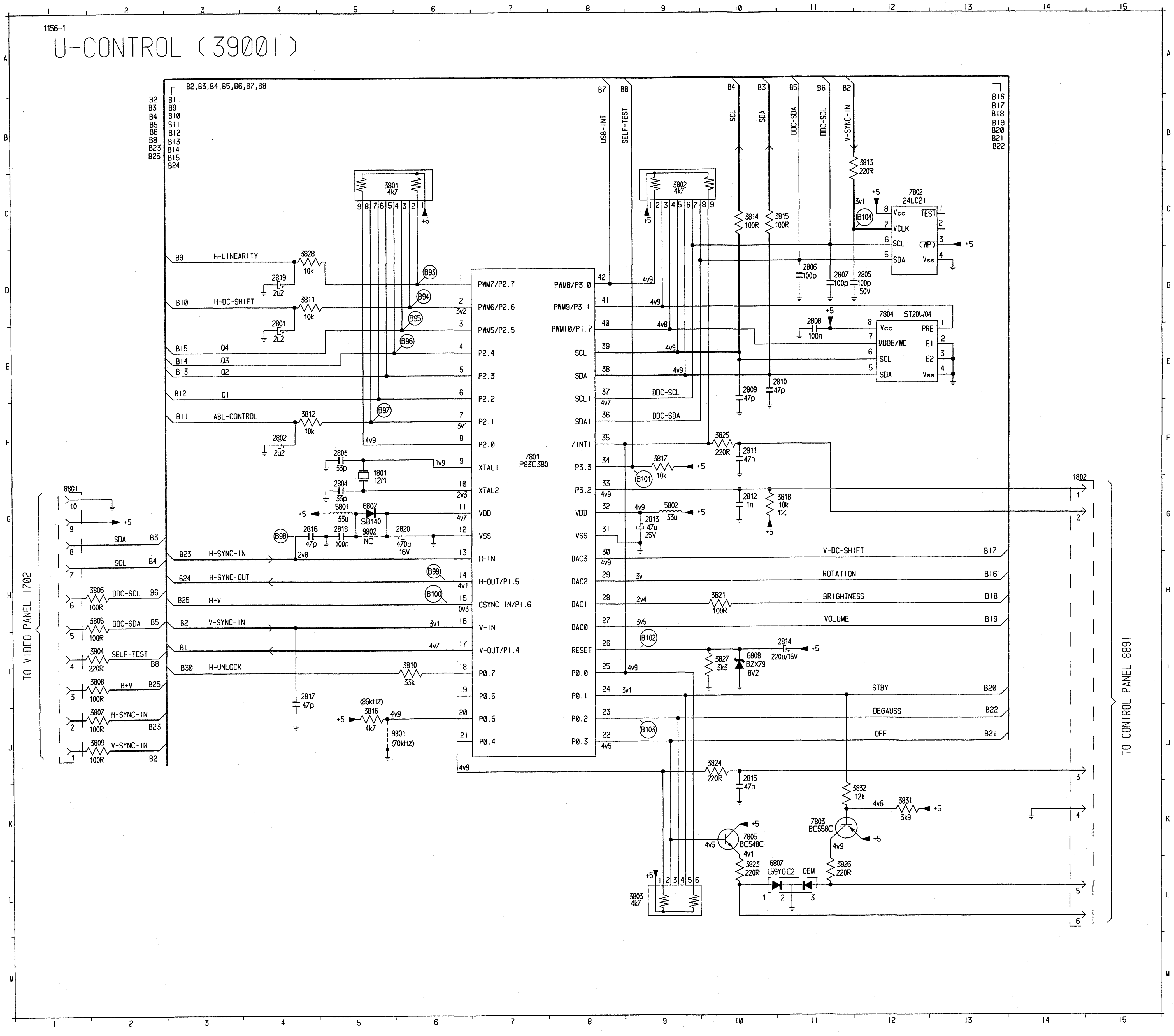
F
G
H
I
J
UL/CSA 4.0A 250V IEC T 4.0A H 250V
WARNING :
TO PREVENT RISKEARTH GND. HEATSINK IS NOT
BEFORE TOUCHING. OF SHOCK , TEST

3122	J	8	2510	F	4	1101	H	13
3123	J	7	2511	D	1	1103	J	10
3125	J	8	2512	C	1	1104	F	12
3126	J	7	2513	D	1	1105	J	1
3129	J	8	2514	D	1	1106	J	2
3130	F	11	2515	C	2	1110	G	5
3131	I	7	2516	C	2	1112	H	11
3132	J	8	2517	D	2	1114	H	13
3133	I	6	2518	D	2	1115	F	13
3134	J	5	2519	C	2	1201	B	3
3135	H	2	2520	D	2	1203	A	2
3136	I	6	2521	F	5	1204	A	1
3137	I	5	2522	D	2	1205	A	3
3138	F	12	2523	F	6	1206	A	1
3139	F	8	2524	C	1	1207	A	3
3140	J	5	2601	A	6	1401	B	7
3142	I	5	2602	A	7	1603	E	4
3143	I	6	2603	B	7	1801	F	2
3144	I	5	2604	E	10	1802	H	1
3145	I	6	2605	E	8	2051	J	3
3146	I	6	2606	D	8	2052	J	4
3157	G	4	2607	D	7	2054	I	3
3158	F	7	2608	E	7	2055	J	2
3159	G	6	2609	E	7	2056	H	5
3160	G	10	2610	D	8	2057	H	4
3161	F	10	2611	E	8	2101	G	12
3162	H	6	2612	E	7	2102	F	13
3163	G	5	2613	C	9	2103	G	13
3164	F	8	2614	A	10	2104	G	11
3165	G	6	2615	D	9	2105	I	10
3166	F	11	2616	E	7	2106	H	11
3167	F	7	2617	A	6	2107	I	8
3168	G	8	2618	B	6	2108	I	8
3169	H	6	2619	B	7	2109	I	7
3170	G	7	2620	A	4	2110	I	10
3171	G	6	2621	B	4	2111	I	7
3172	G	5	2622	A	5	2112	J	7
3173	G	7	2623	B	4	2113	J	7
3174	F	7	2624	A	6	2114	H	10
3175	F	7	2625	A	5	2115	J	6
3201	A	2	2626	C	6	2116	J	8
3202	B	2	2627	A	4	2117	I	7
3203	B	2	2628	B	4	2118	J	6
3204	A	2	2629	A	12	2119	F	11
3205	B	2	2630	A	11	2120	I	6
3206	B	2	2631	F	11	2121	J	9
3208	H	5	2632	D	11	2128	I	9
3209	H	7	2633	B	6	2151	G	10
3210	H	6	2634	E	9	2152	F	10
3216	B	1	2635	F	10	2153	G	9
3220	B	2	2636	B	9	2154	G	10
3221	A	1	2637	C	13	2155	G	9
3222	A	1	2639	A	4	2156	G	8
3223	A	3	2640	D	4	2157	H	8
3224	A	3	2641	D	5	2158	H	7
3225	A	3	2642	A	9	2159	G	8
3226	E	1	2643	B	9	2160	G	8
3227	B	1	2644	D	1	2161	G	7
3403	D	12	2645	D	10	2162	G	8
3404	D	12	2646	D	4	2163	G	6
3405	D	12	2647	A	9	2164	F	10
3406	D	13	2648	A	12	2165	G	11
3407	D	13	2649	A	12	2166	G	3
3408	E	12	2650	A	12	2167	G	6
3409	E	5	2801	E	2	2169	F	11
3410	D	13	2802	F	2	2170	G	6
3411	E	10	2803	F	2	2171	H	7
3413	G	5	2804	F	2	2201	B	3
3415	D	5	2805	I	1	2202	B	1
3416	D	5	2806	I	2	2203	B	2
3417	E	12	2807	I	2	2204	B	2
3418	E	13	2808	I	2	2212	B	1
3419	C	7	2809	I	3	2213	B	1
3420	C	6	2810	H	3	2214	B	1
3421	C	6	2811	H	1	2215	A	1
3422	D	6	2812	H	2	2216	A	1
3423	C	6	2813	G	2	2217	A	2
3424	E	13	2814	G	1	2218	B	3
3425	D	5	2815	H	1	2401	D	12
3426	E	6	2816	F	1	2402	D	13
3427	C	13	2817	F	3	2403	D	12
3428	C	12	2818	F	2	2404	E	13
3429	C	7	2819	F	2	2405	E	12
3430	C	13	2820	F	2	2406	E	11
3431	G	4	3051	J	4	2407	D	5
3432	G	5	3052	I	3	2408	D	5
3433	G	7	3053	I	3	2409	C	7
3435	E	13	3054	I	3	2410	D	6
3436	D	13	3055	I	3	2411	E	6
3437	D	13	3101	H	11	2412	E	5
3501	F	5	3105	J	9	2413	D	6
3502	F	4	3106	I	5	2414	C	13
3503	F	5	3107	H	11	2415	E	13
3504	F	6	3108	I	12	2416	B	13
3505	F	6	3109	I	13	2417	E	13
3506	F	4	3110	I	7	2418	E	12
3507	D	2	3111	I	8	2419	C	13
3508	C	2	3112	I	5	2501	D	2
3509	E	1	3113	J	5	2502	F	6
3510	D	1	3114	J	6	2503	C	2
3511	E	2	3115	J	7	2504	C	3
3512	D	1	3116	J	10	2505	D	2
3513	D	1	3117	J	10	2506	B	2
3515	C	4	3118	J	10	2507	C	2
3516	C	4	3120	I	10	2508	C	1
3517	F	6	3121	I	7	2509	C	1


13
12
11
10
9
8
7
6
5
4
3
2
1
A
B
C
D
E
F
G
H
I
J
3000.5
(MK:0803)
3138 103 3000.2
838 273 4729.2 GPC
UL/CSA 4.0A 250V IEC T 4.0A H 250V
WARNING :
TO PREVENT RISKEARTH GND. HEATSINK IS NOT
BEFORE TOUCHING. OF SHOCK , TEST

U-Control Schematic Diagram

D

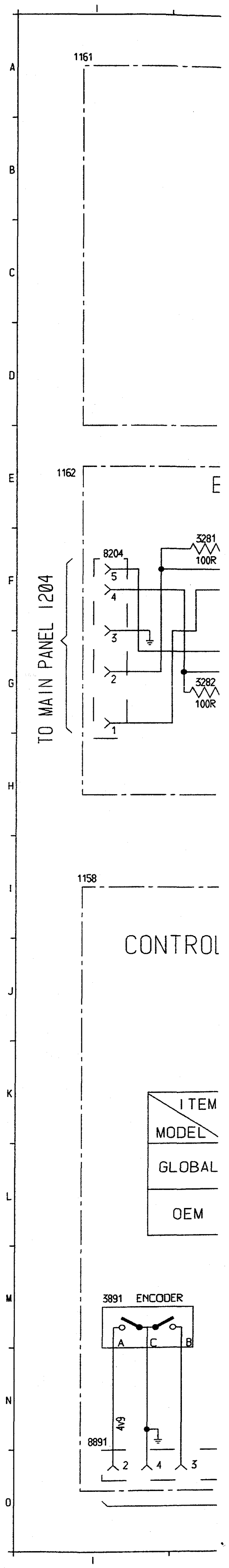

1156-1
U-CONTROL (39001)
B2,B3,B4,B5,B6,B7,B8
7801 P83C380
PWM7/P2.7
PWM6/P2.6
PWM5/P2.5
P2.4
P2.3
P2.2
P2.1
P2.0
XTAL1
XTAL2
VDD
VSS
H-IN
H-OUT/P1.5
CSYNC IN/P1.6
V-IN
V-OUT/P1.4
P0.7
P0.6
P0.5
P0.4
PWM8/P3.0
PWM9/P3.1
PWM10/P1.7
SCL
SDA
SCL1
SDA1
/INT1
P3.3
P3.2
DAC3
DAC2
DAC1
DAC0
RESET
P0.0
P0.1
P0.2
P0.3
H-LINEARITY
H-DC-SHIFT
ABL-CONTROL
H-SYNC-IN
H-SYNC-OUT
H+V
V-SYNC-IN
H-UNLOCK
USB-INT
SELF-TEST
DDC-SDA
DDC-SCL
V-SYNC-IN
7802 24LC21
7804 ST20W04
V-DC-SHIFT
ROTATION
BRIGHTNESS
VOLUME
STBY
DEGAUSS
OFF
7805 BC548C
7803 BC558C
6807 L59YGC2
OEM
6808 BZX79 8V2
1801 12M
6802 SB140
TO VIDEO PANEL 1702
TO CONTROL PANEL 8891
1802
8801

1801	F 5
1802	J14
1802	G14
1802	G14
1802	L14
1802	L14
1802	K14
2801	E 4
2802	F 4
2803	F 5
2804	G 5
2805	D12
2806	D11
2807	D11
2808	E11
2809	E10
2810	E11
2811	F10
2812	G10
2813	G 9
2814	I11
2815	K10
2816	G 4
2817	I 4
2818	G 5
2819	D 4
2820	G 6
3801	C 5
3802	C 9
3803	L 9
3804	I 2
3805	H 2
3806	H 2
3807	J 2
3808	I 2
3809	J 2
3810	I 6
3811	D 4
3812	F 4
3813	B12
3814	C10
3815	C11
3816	J 5
3817	F 9
3818	G11
3821	H10
3823	L10
3824	J10
3825	F10
3826	L11
3827	I10
3828	D 4
3831	K12
3832	K12
5801	G 5
5802	G 9
6802	G 5
6807	L10
6808	I10
7801	F 7
7802	C12
7803	K11
7804	D12
7805	K10
8801	J 1
8801	J 1
8801	I 1
8801	I 1
8801	H 1
8801	H 1
8801	H 1
8801	G 1
8801	G 1
8801	G 1
9801	J 6
9802	G 5

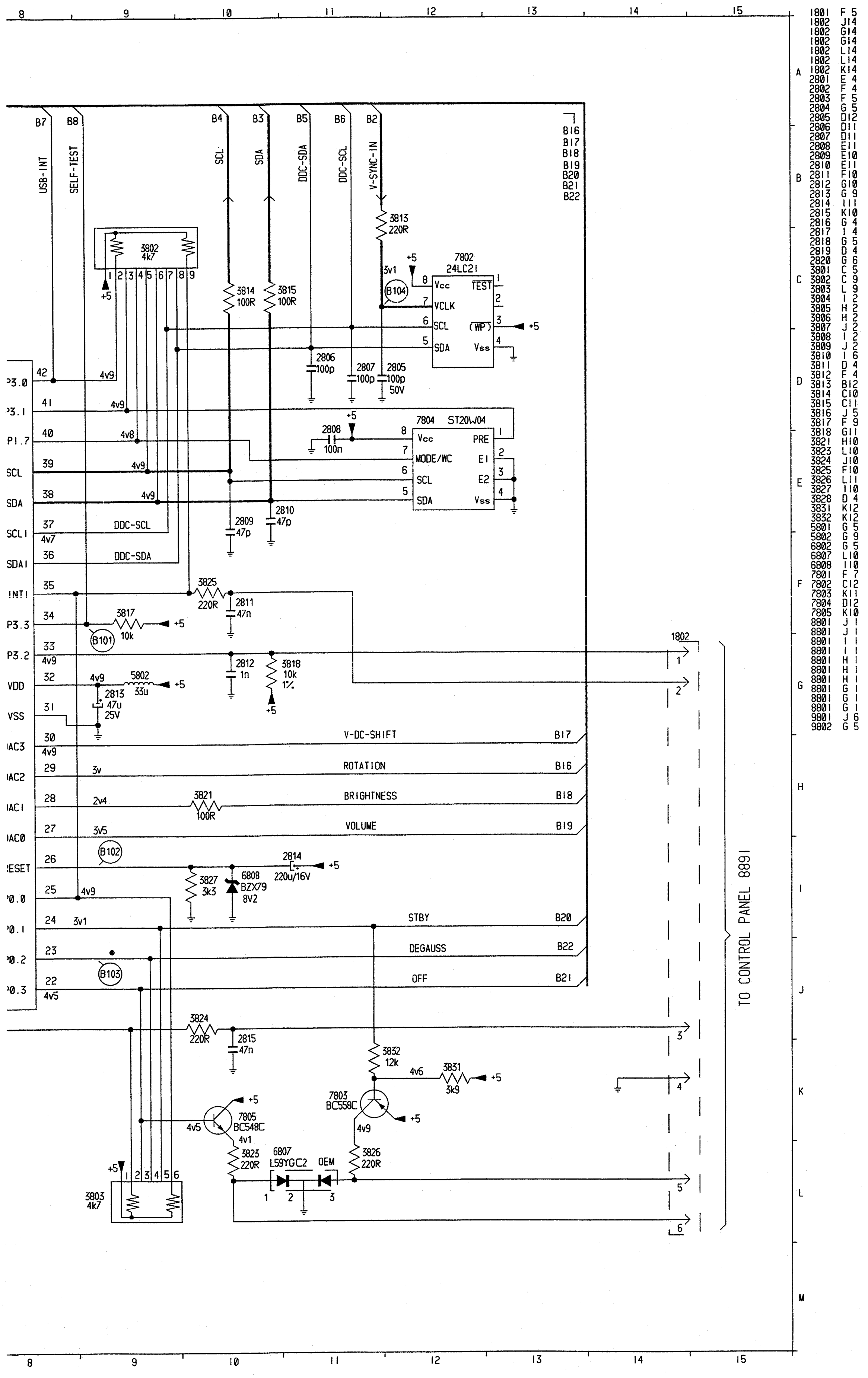
E

F

G


1161
1162
1158
TO MAIN PANEL 1204
8204
3281 100R
3282 100R
CONTROL
ITEM
MODEL
GLOBAL
OEM
3891 ENCODER
8891

Schematic Diagram

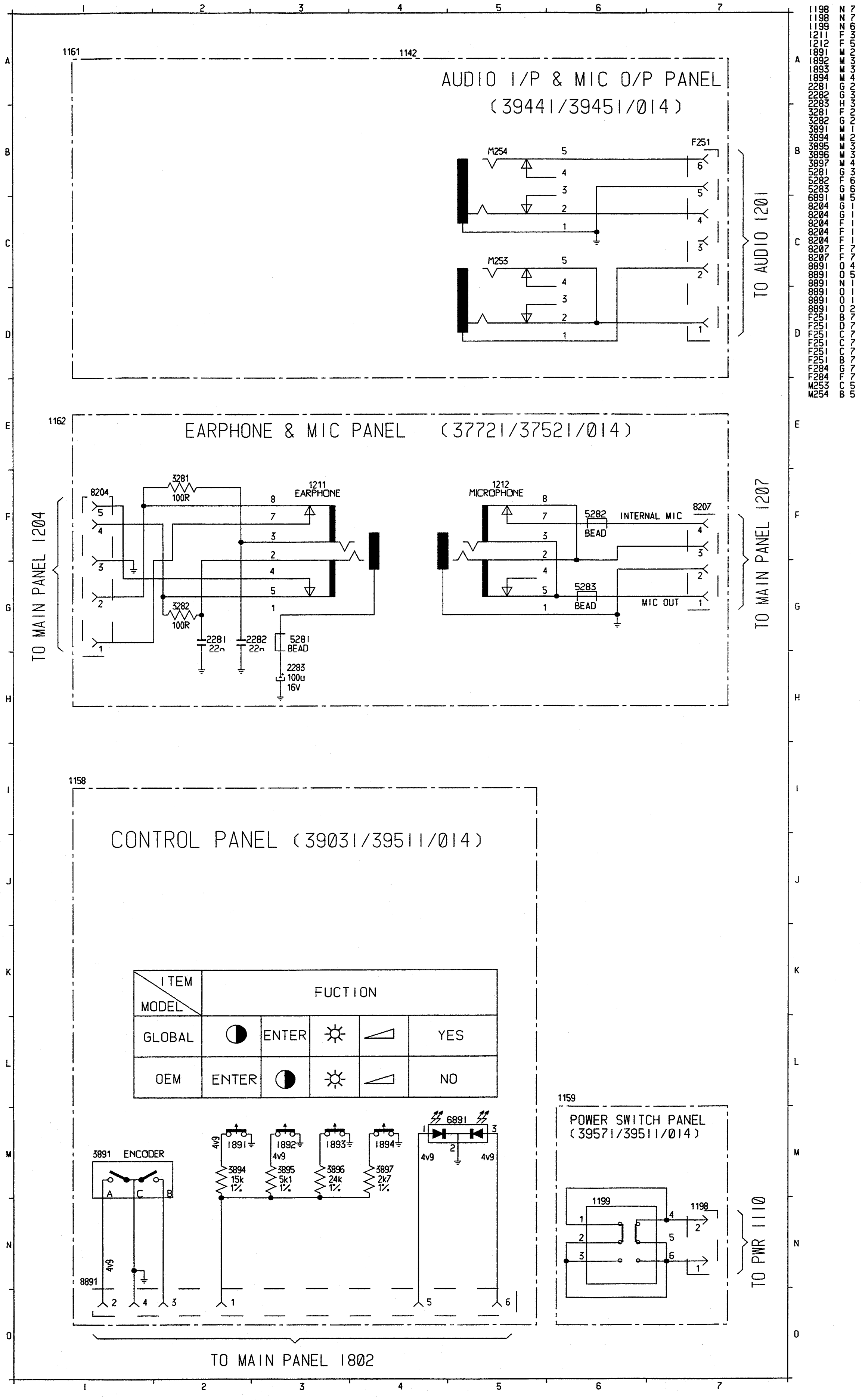

USB-INT
SELF-TEST
SCL
SDA
DDC-SDA
DDC-SCL
V-SYNC-IN
7802 24LC21
7804 ST20W04
V-DC-SHIFT
ROTATION
BRIGHTNESS
VOLUME
STBY
DEGAUSS
OFF
7805 BC548C
7803 BC558C
6807 L59YGC2 OEM
6808 BZX79 8V2
TO CONTROL PANEL 8891

Earphone, Control and Power Switch Schematic Diagram

E

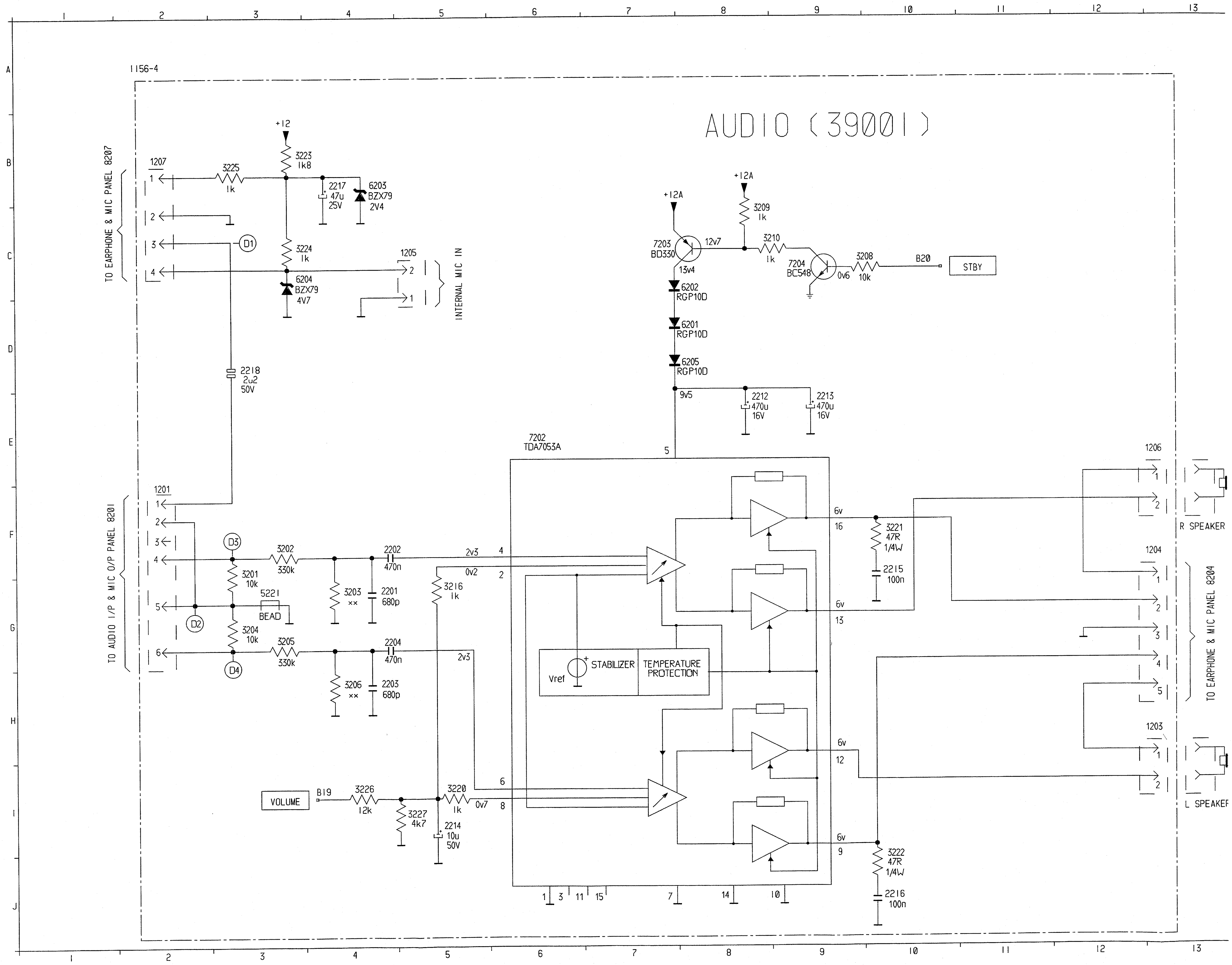
F

G

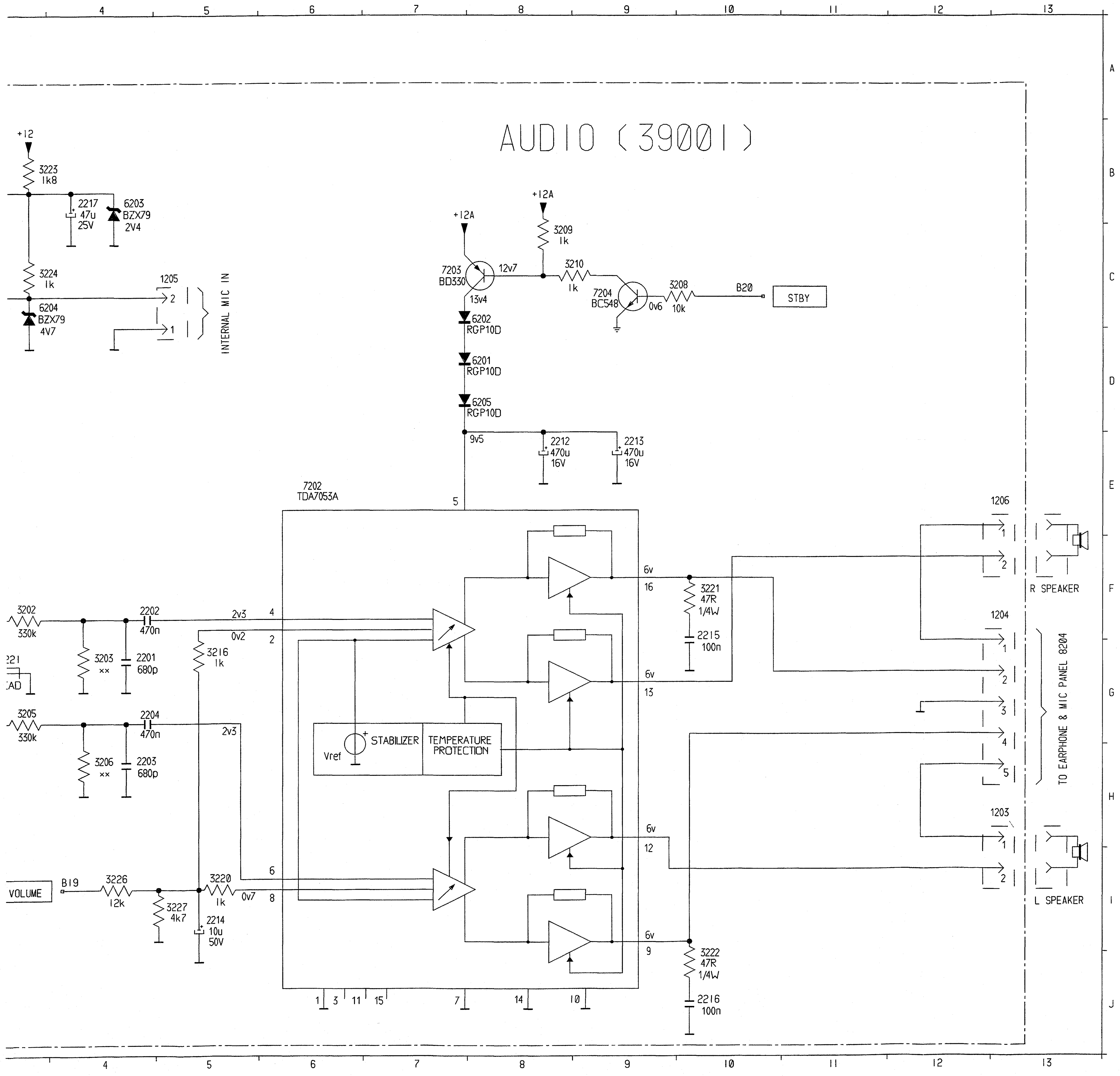

AUDIO I/P & MIC O/P PANEL
(39441/39451/014)
TO AUDIO 1201
EARPHONE & MIC PANEL (37721/37521/014)
1211 EARPHONE
1212 MICROPHONE
INTERNAL MIC
MIC OUT
TO MAIN PANEL 1204
TO MAIN PANEL 1207
CONTROL PANEL (39031/39511/014)
ITEM
MODEL
FUCTION
GLOBAL
ENTER
YES
OEM
ENTER
NO
3891 ENCODER
POWER SWITCH PANEL (39571/39511/014)
TO PWR 1110
TO MAIN PANEL 1802

H

Audio Schematic Diagram


1156-4
AUDIO (39001)
TO EARPHONE & MIC PANEL 8207
1207
+12
3223
1k8
3225
1k
2217
47u
25V
6203
BZX79
2V4
D1
3224
1k
1205
6204
BZX79
4V7
INTERNAL MIC IN
2218
2u2
50V
+12A
+12A
3209
1k
7203
BD330
12v7
3210
1k
7204
BC548
0v6
3208
10k
B20
STBY
13v4
6202
RGP10D
6201
RGP10D
6205
RGP10D
9v5
2212
470u
16V
2213
470u
16V
7202
TDA7053A
TO AUDIO I/P & MIC O/P PANEL 8201
1201
D3
3202
330k
2202
470n
2v3
0v2
3201
10k
5221
BEAD
3203
xx
2201
680p
3216
1k
D2
3204
10k
3205
330k
2204
470n
2v3
D4
3206
xx
2203
680p
STABILIZER
Vref
TEMPERATURE PROTECTION
VOLUME
B19
3226
12k
3227
4k7
3220
1k
0v7
2214
10u
50V
6v
3221
47R
1/4W
2215
100n
6v
6v
6v
3222
47R
1/4W
2216
100n
1206
R SPEAKER
1204
TO EARPHONE & MIC PANEL 8204
1203
L SPEAKER

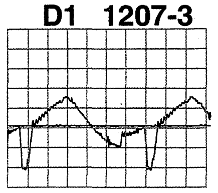
Audio Schematic Diagram


AUDIO (39001)
+12
3223
1k8
2217
47u
25V
6203
BZX79
2V4
3224
1k
6204
BZX79
4V7
1205
2
1
INTERNAL MIC IN
+12A
7203
BD330
12v7
13v4
6202
RGP10D
6201
RGP10D
6205
RGP10D
9v5
+12A
3209
1k
3210
1k
7204
BC548
0v6
3208
10k
B20
STBY
2212
470u
16V
2213
470u
16V
7202
TDA7053A
5
3202
330k
2202
470n
2v3
4
0v2
2
3203
xx
2201
680p
3216
1k
3205
330k
2204
470n
2v3
3206
xx
2203
680p
Vref
STABILIZER
TEMPERATURE PROTECTION
VOLUME
B19
3226
12k
3227
4k7
3220
1k
0v7
6
8
2214
10u
50V
1
3
11
15
7
14
10
6v
16
3221
47R
1/4W
2215
100n
6v
13
6v
12
6v
9
3222
47R
1/4W
2216
100n
1206
1
2
R SPEAKER
1204
1
2
3
4
5
TO EARPHONE & MIC PANEL 8204
1203
1
2
L SPEAKER
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
I
J

1201	G 2
1201	G 2
1201	F 2
1201	F 2
1201	F 2
1201	F 2
1203	H13
1203	H13
1204	G13
1204	G13
1204	G13
1204	F13
1204	G13
1205	C 5
1205	C 5
1206	E13
1206	F13
1207	B 2
1207	C 2
1207	C 2
1207	B 2
2201	G 4
2202	F 4
2203	H 4
2204	G 4
2212	E 8
2213	E 9
2214	I 5
2215	F10
2216	J10
2217	B 4
2218	D 3
3201	F 3
3202	F 3
3203	G 4
3204	G 3
3205	G 3
3206	H 4
3208	C10
3209	C 8
3210	C 9
3216	G 5
3220	I 5
3221	F10
3222	J10
3223	B 4
3224	C 4
3225	B 3
3226	I 4
3227	I 5
5221	G 3
6201	D 8
6202	C 8
6203	B 4
6204	C 4
6205	D 8
7202	E 6
7203	C 7
7204	C 9

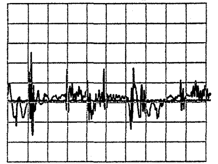
Waveforms for Diagram I

D1 1207-3



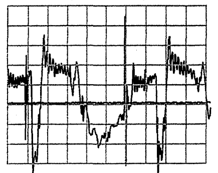
0.2 V/div AC
5 uS/div

D2 1201-2



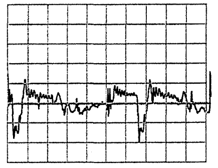
50 mV/div AC
5 uS/div

D3 1201-4



20 mV/div AC
5 uS/div

D4 1201-6



50 mV/div AC
5 uS/div

PCS 98 279

Repair tips

Warning

All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the unit via a wrist wrap with resistance. Keep components and tools also at the same potential.

1. Servicing of SMDs (Surface Mounted Devices)

1.1 General cautions on handling and storage
- Oxidation on the terminals of SMDs results in poor soldering. Do not handle SMDs with bare hands.
- Avoid using storage places that are sensitive to oxidation such as places with sulphur or chlorine gas, direct sunlight, high temperatures or a high degree of humidity. The capacitance or resistance value of the SMDs may be affected by this.
- Rough handling of circuit boards containing SMDs may cause damage to the components as well as the circuit boards. Circuit boards containing SMDs should never be bent or flexed. Different circuit board materials expand and contract at different rates when heated or cooled and the components and/or solder connections may be damaged due to the stress. Never rub or scrape chip components as this may cause the value of the component to change. Similarly, do not slide the circuit board across any surface.

1.2 Removal of SMDs
- Heat the solder (for 2-3 seconds) at each terminal of the chip. By using a solder wick and a slight horizontal force, small components can be removed with the soldering iron. They can also be removed with a solder sucker (see Fig. 4.1A)

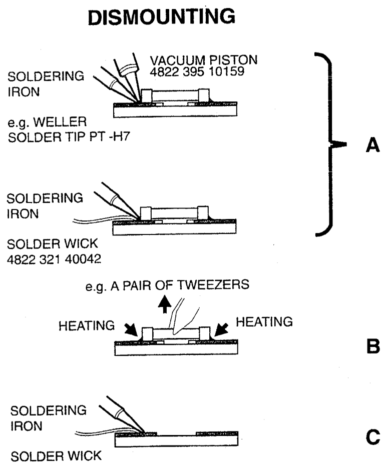

DISMOUNTING
SOLDERING IRON
VACUUM PISTON 4822 395 10159
e.g. WELLER SOLDER TIP PT -H7
A
SOLDERING IRON
SOLDER WICK 4822 321 40042
e.g. A PAIR OF TWEEZERS
HEATING
HEATING
B
SOLDERING IRON
SOLDER WICK
C

Fig. 4.1

- While holding the SMD with a pair of tweezers, take it off gently using the soldering iron's heat applied to each terminal (see Fig. 4.1 B).
- Remove the excess solder on the solder lands by means of a solder wick or a solder sucker (see Fig. 4.1C).

1.3 Caution on removal
- When handling the soldering iron, use suitable pressure and be careful.
- When removing the chip, do not use undue force with the pair of tweezers.
- The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250 °C).
- The chip, once removed, must never be reused.

1.4 Attachment of SMDs
- Locate the SMD on the solder lands by means of tweezers and solder the component on one side. Ensure that the component is positioned correctly on the solder lands (see Fig. 4.2A).
- Next complete the soldering of the terminals of the component (see Fig. 4.2B).

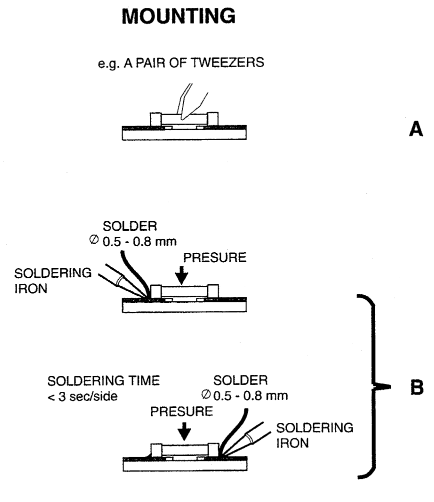

MOUNTING
e.g. A PAIR OF TWEEZERS
A
SOLDER
∅ 0.5 - 0.8 mm
PRESURE
SOLDERING IRON
SOLDERING TIME < 3 sec/side
SOLDER ∅ 0.5 - 0.8 mm
PRESURE
SOLDERING IRON
B

Fig. 4.2

2. Caution when attaching SMDs

- When soldering the SMD terminals, do not touch them directly with the soldering iron. The soldering should be done as quickly as possible, care must be taken to avoid damage to the terminals of the SMDs themselves.
- Keep the SMD's body in contact with the printed board when soldering.
- The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250 °C).
- Soldering should not be done outside the solder land.
- Soldering flux (of rosin) may be used, but should not be acidic.
- After soldering, let the SMD cool down gradually at room temperature.
- The quantity of solder must be proportional to the size of the solder land. If the quantity is too great, the SMD might crack or the solder lands might be torn loose from the printed board (see Fig. 4.3).

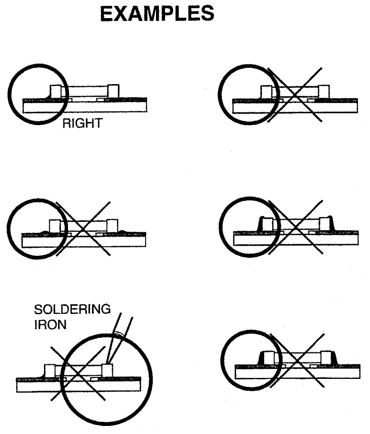
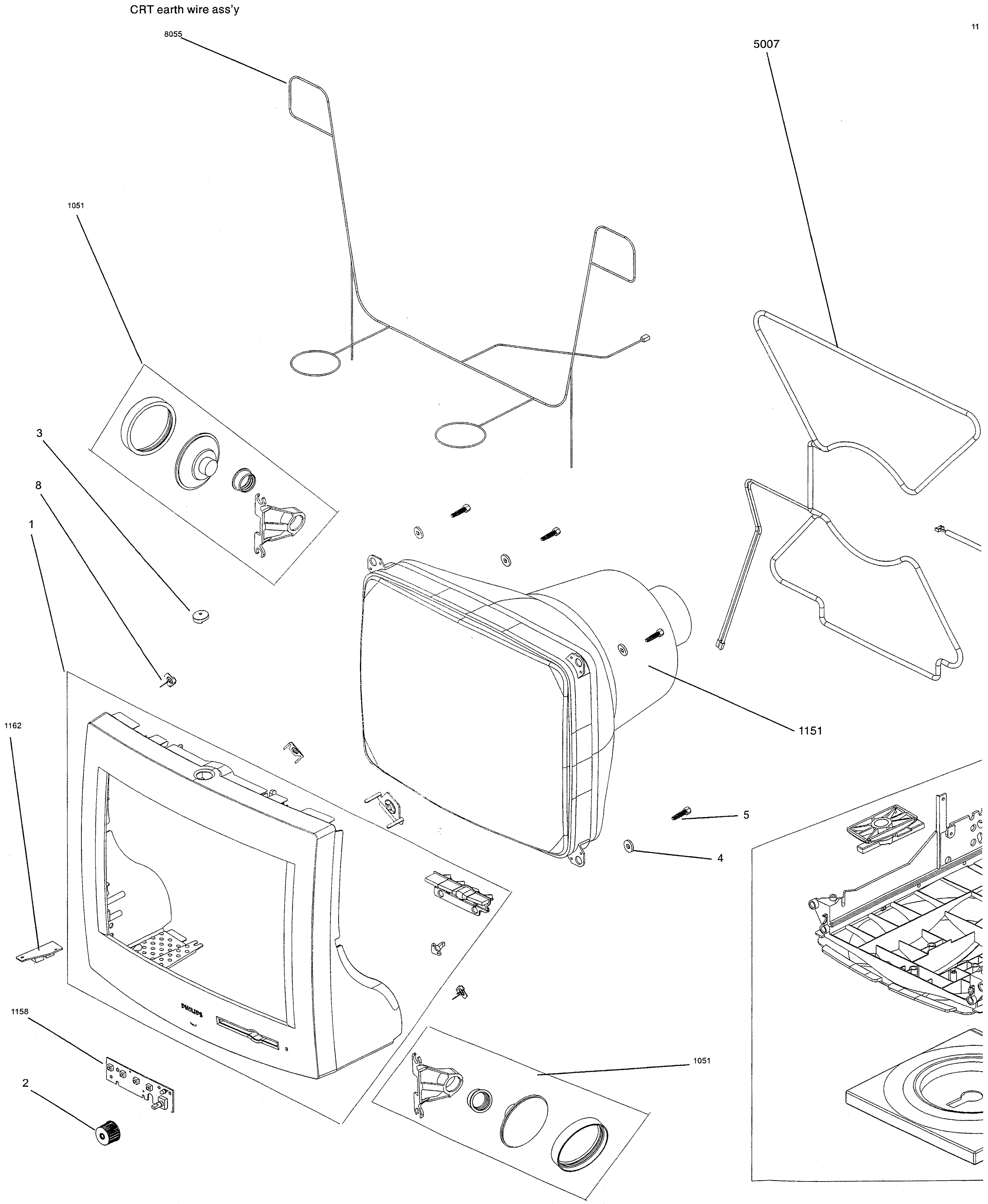

EXAMPLES
RIGHT
SOLDERING IRON

Fig. 4.3

Exploded View


CRT earth wire ass'y
8055
11
5007
1051
3
8
1
1151
1162
5
4
1158
2
1051

means of tweezers and
ure that the component is
(see Fig. 4.2A).
inals of the component

A

B

not touch them directly with
d be done as quickly as
damage to the terminals of the

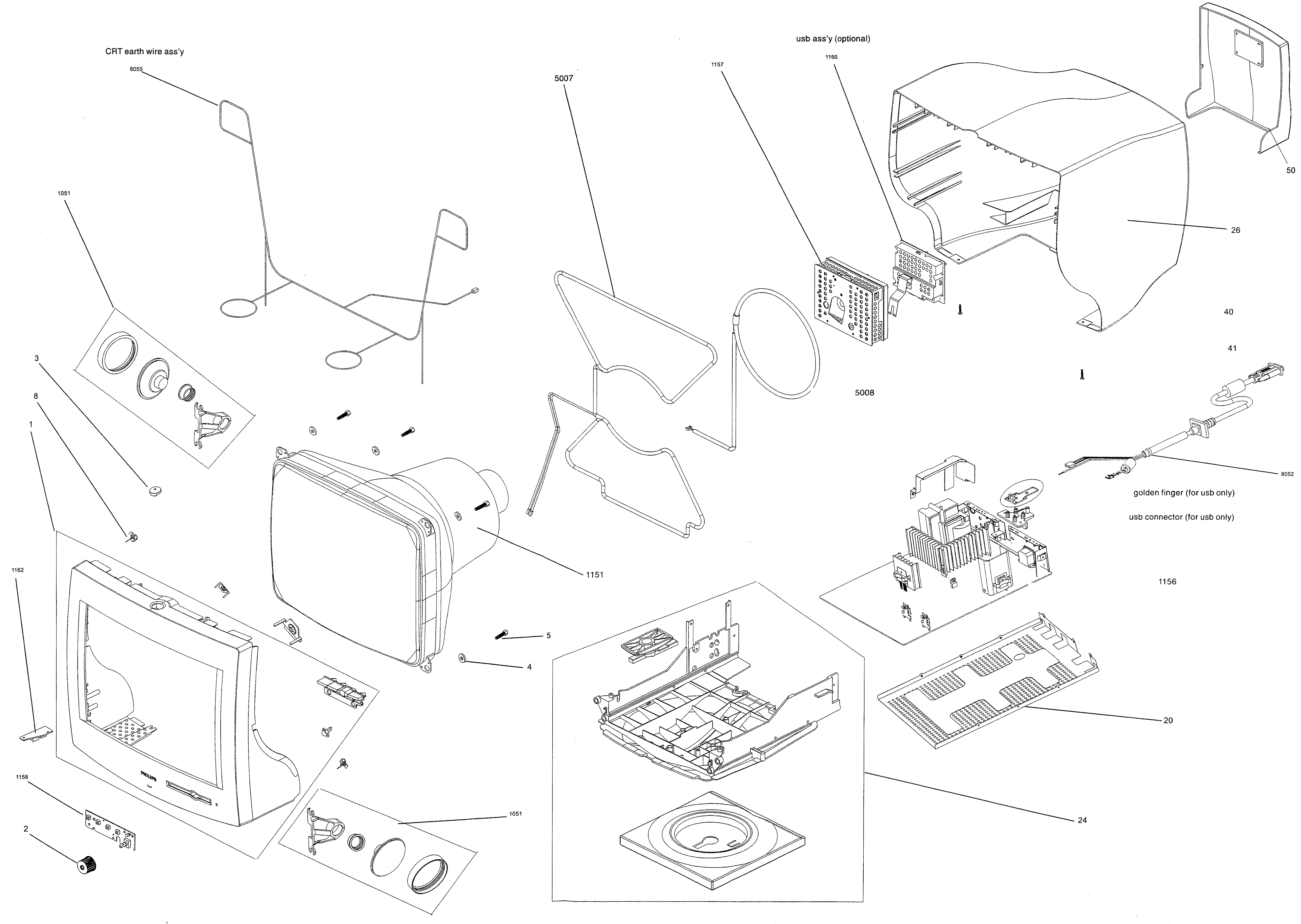
ne printed board when

30 W) should preferably be
ring temperature: 225 to

he solder land.
out should not be acidic.
gradually at room

ional to the size of the solder
ID might crack or the solder
ted board (see Fig. 4.3).

Exploded View


CRT earth wire ass'y
8055
1051
3
8
1
1162
1158
2
1051
5
4
1151
5007
1157
usb ass'y (optional)
1160
50
26
40
41
5008
8052
golden finger (for usb only)
usb connector (for usb only)
1156
20
24

Spare parts list

Parts indicated on exploded view: Model: 17B2302Q/00C

1	3138 107 95060	FRONT CABINET ASSY
	3138 104 39080	LENS
	3138 104 39070	KNOB-FUNCTION
	3138 104 41510	LOCKER
2	3138 104 37910	ROTARY KNOB
3	3138 104 41840	POWER KNOB
4	3138 101 63950	CRT MOUNTING WASHER
5	3138 100 41180	TAP TITE SCREW W/WASHER
8	3138 101 64480	CRT PLATE
24	3138 107 95100	BOTTOM PLATE ASSY
	3138 104 39050	BOTTOM PLATE
	3138 104 38270	SLIDER
	3138 104 39140	BASE
26	3138 104 39040	BACK COVER
50	3138 104 39060	BACK DOOR
1051	3138 128 64430	SPEAKER+WIRE ASS'Y
1151▲	4822 131 11288	M41KXH107X02(B)
1156	3138 128 63460	MAIN PCB ASSY
1157	3138 128 62900	VIDEO PCB ASSY
1158	3138 128 63470	KEY CONTROL PCB ASSY
1159	3138 128 63130	DC SWITCH PCB ASSY
1162	3138 128 62950	EARPHONE PCB ASSY
5007▲	3138 178 71350	DEGAUSSING COIL
5008	4822 157 10652	ROTATION COIL
8052	3138 178 71590	I/F CABLE

Various

	3138 106 51540	CARTON
	3138 106 51550	CUSHION LEFT
	3138 106 51560	CUSHION RIGHT
	3138 106 51570	CUSHION BOTTOM
	4822 701 14248	PE BAG (for SET)
	4822 701 20292	TAPPING SCREW WITH WASHER
	3138 105 35350	D.F.U
	4822 600 10409	P.E. BAG (for D.F.U.)
	3138 105 34910	EUR. WARANTY BOOKLET
	3138 104 39100	CAP-SPEAKER
	4822 701 14688	RUBBER SUPPORT-SPEAKER
	3138 104 39110	HOLDER SPEAKER
	3138 104 39090	HORN-SPEAKER
5001	4822 240 10266	LOUD SPEAKER (25R-1W)
5002	4822 240 10266	LOUD SPEAKER (25R-1W)
1150	4822 242 30337	MICRO PHONE (WM-55A103)

Accessories

▲	4822 321 11194	MAINS CORD
	3138 178 72040	AUDIO I/P CABLE
	3138 178 72050	MICROPHONE CABLE
	3138 117 01010	WIN 95 VERSION:2.0

1156 Main Panel

Various

1156	3138 128 63460	MAIN PCB ASSY
	4822 492 71337	SPRING (FUSE HOLDER)
	5322 390 20011	VET SILIC.P4 20GR
1101▲	4822 070 34002	FUSE,218004.(4A)
1104▲	4822 280 70378	RELAY 2P 12V/60MA OMI-SS212 B
1110	4822 265 10286	2P
1112	4822 265 30891	2 P.
1201	4822 265 41422	6P
1203	4822 265 10286	2P
1204	4822 265 31207	5P
1205	4822 265 10286	2P
1206	4822 265 20692	2P MALE
1207	4822 265 31206	4P
1114	3138 178 71880	AC INLET ASSY
	4822 492 62076	FOR TRANSISTORS
	5322 390 20011	VET SILIC.P4 20GR
	4822 701 20292	TAPPING SCREW WITH WASHER

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1258	3138 128 64480	EEPROM ASS'Y
1603	4822 265 31231	3 P MALE
1801	4822 242 10836	RES XTL 12MHz 30P
1802	4822 265 41422	6P

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2101	5322 121 44212	1µF 10% 275B
2102	4822 126 14084	4.7nF 20% 250V
2103	4822 126 14084	4.7nF 20% 250V
2104	4822 121 10661	2.2nF 20% 400V
2105	4822 124 42168	330µF 400V
2106	4822 121 70556	47nF 20% 250V
2109	4822 124 42149	220µF 20% 25V
2111	4822 126 12726	47pF 5% 50V
2112	5322 122 32331	1nF 10% 100V
2113	4822 121 43696	100nF 100V
2114▲	4822 126 14084	4.7nF 20% 250V
2115	4822 124 40246	4.7µF 20% 63V
2117	4822 121 10635	1nF 2% 100V
2118	4822 124 40246	4.7µF 20% 63V
2119	4822 124 40246	4.7µF 20% 63V
2120	5322 122 32052	680pF 10% 100V
2121	4822 121 43516	47nF 400V
2128	4822 126 14275	470pF 2KV
2151	4822 126 10783	100pF 5% 2KV
2152	4822 124 11863	220U 20% 160V
2153	4822 126 14269	220pF 10% 2KV
2154	4822 124 80538	220µF 20% 100V
2155	4822 122 33645	220pF 500V
2156	4822 124 40201	1000µF 20% 16V
2157	4822 122 33645	220pF 500V
2158	4822 124 40207	100µF 20% 25V
2159	4822 122 33645	220pF 500V
2160	4822 124 42339	1000µF 25V
2162	4822 124 22678	100µF 20% 16V
2163	4822 121 43697	330nF 10% 100V
2164	4822 122 32899	100pF 10%B 500V
2165	4822 124 11896	4700µF 20% 35V
2166	4822 124 42172	1000µF 16V
2167	4822 126 11099	100pF 5% 50V
2169	5322 122 32331	1nF 10% 100V
2170	4822 126 11099	100pF 5% 50V
2201	5322 122 32052	680pF 10% 100V
2202	4822 121 43913	470nF 10% 100V
2203	5322 122 32052	680pF 10% 100V
2204	4822 121 43913	470nF 10% 100V
2212	4822 124 40198	470µF 20% 16V
2213	4822 124 40198	470µF 20% 16V
2214	4822 124 23539	10µF 20% 50V
2215	4822 121 43696	100nF 100V
2216	4822 121 43696	100nF 100V
2217	4822 124 80132	47µF 20% 25V
2218	4822 124 11613	2.2µF 20% 50V
2401	4822 124 22669	1µF 20% 50V
2402	4822 126 10757	22nF 20% 50V
2403	4822 121 70547	1.5nF 5% 100V
2404	4822 121 70162	10nF 5% 400V
2405	4822 124 40804	22µF 20% 63V
2406	5322 124 40641	10µF 20% 100V
2407	5322 122 32331	1nF 10% 100V
2408	5322 122 32331	1nF 10% 100V
2409	4822 121 43696	100nF 100V
2410	4822 126 14213	100nF 10% 100V
2411	4822 124 42169	470µF 25V
2412	4822 124 42359	47µF 100V
2413	4822 124 42169	470µF 25V
2414	4822 124 11937	4.7µF 20% 50V
2415	4822 121 70452	3.3nF 5% 100V
2416	4822 124 22669	1µF 20% 50V
2417	4822 121 43697	330nF 10% 100V
2418	5322 122 32331	1nF 10% 100V
2419	4822 126 10453	50V
2501	4822 126 12726	47pF 5% 50V
2502	4822 121 70073	100nF 10% 250V
2503	4822 126 12726	47pF 5% 50V
2504	4822 126 12726	47pF 5% 50V
2505	4822 124 42172	1000µF 16V
2506	4822 121 43696	100nF 100V
2507	4822 121 43898	8.2nF 5% 250V
2508	4822 121 70162	10nF 5% 400V
2509	4822 121 10576	5.6nF 2% 100V
2510	4822 124 22669	1µF 20% 50V
2511	4822 122 31069	39pF 2% 100V
2512	4822 124 23539	10µF 20% 50V
2513	4822 121 43693	10nF 100V
2514	4822 121 10732	0.0022G 100VT
2515	4822 121 10574	180nF 10% 100V
2516	4822 121 43696	100nF 100V
2518	4822 126 12726	47pF 5% 50V
2519	4822 126 11099	100pF 5% 50V
2520	4822 126 11099	100pF 5% 50V
2521	4822 124 23539	10µF 20% 50V
2522	4822 121 43693	10nF 100V
2523	4822 126 10206	2.2nF 10% 500V
2601	4822 121 43693	10nF 100V
2602	4822 124 12142	0.47µF 10% 100V
2603	4822 124 42162	1µF 160V
2604	4822 124 42161	33µF 20% 250V
2605	4822 121 10504	250V 10N 5%
2606	4822 121 10733	470nF 100V
2607	4822 124 23539	10µF 20% 50V
2608	4822 124 23539	10µF 20% 50V
2609	4822 121 70439	2.2nF 5% 100V
2610	4822 126 14275	470pF 2KV
2611	4822 126 14275	470pF 2KV
2612	4822 121 70439	2.2nF 5% 100V
2613	4822 121 70147	3.9nF 5% 1.6KV
2614	4822 121 43697	330nF 10% 100V
2616	4822 124 23539	10µF 20% 50V
2618	4822 121 43696	100nF 100V
2619	4822 126 13824	400V 4N7 5%
2620	4822 126 10757	22nF 20% 50V
2621	4822 121 43697	330nF 10% 100V
2622	4822 121 70241	120nF 5% 250V
2623	4822 121 70572	390nF 5% 250V
2624	4822 121 10734	240nF 5% 250V
2625	4822 121 70412	270nF 5% 250V
2626	4822 121 10735	910nF 5% 250V
2627	4822 126 10757	22nF 20% 50V
2628	4822 126 10757	22nF 20% 50V
2629	4822 121 43516	47nF 400V
2630	4822 122 33646	470pF 10% 500V
2631	4822 124 40755	100µF 20% 100V
2632	4822 121 40337	4.7nF 10% 630V
2634	4822 124 42144	470µF 63V
2635	4822 124 42144	470µF 63V
2636	4822 121 70301	1µF 100V
2637	4822 121 40336	47nF 10% 250V
2639	4822 124 40246	4.7µF 20% 63V
2640	4822 124 23539	10µF 20% 50V
2641	4822 124 23539	10µF 20% 50V
2642	4822 124 22499	10µF 160V
2643	4822 124 40764	22µF 100 V
2644	4822 126 11103	10nF 5% 50V
2646	4822 121 43696	100nF 100V
2648	4822 126 13035	220pF 10% 2KV
2649	4822 126 14318	180pF 10% 2KV
2650	4822 126 13134	1nF 10% 1KV
2801	4822 124 12072	2.2µF 20% 50V
2802	4822 124 40763	2.2µF 100 V
2803	5322 122 32072	33pF 2% 100V
2804	5322 122 32072	33pF 2% 100V
2805	4822 126 11099	100pF 5% 50V
2806	4822 126 11099	100pF 5% 50V
2807	4822 126 11099	100pF 5% 50V
2808	4822 121 43696	100nF 100V
2809	4822 126 12726	47pF 5% 50V
2810	4822 126 12726	47pF 5% 50V
2811	4822 121 43695	47nF 10% 100V
2812	5322 122 32331	1nF 10% 100V
2813	4822 124 80132	47µF 20% 25V
2814	4822 124 22666	220µF 20% 16V
2815	4822 121 43695	47nF 10% 100V
2816	4822 126 12726	47pF 5% 50V
2817	4822 126 12726	47pF 5% 50V
2818	4822 121 43696	100nF 100V
2819	4822 124 40763	2.2µF 100 V
2820	4822 124 40198	470µF 20% 16V

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3101	4822 053 21684	680k 5% 0.5W
3106	4822 050 21504	150k 1% 0.6W
3107▲	4822 052 10221	220Ω 5% 0.33W
3108▲	4822 052 10221	220Ω 5% 0.33W
3109	4822 116 30469	5Ω 15%
3111	4822 117 11633	22k 5% 5W
3112	4822 050 21504	150k 1% 0.6W
3113▲	4822 052 10109	10Ω 5% 0.33W
3114	4822 050 23902	3k9 1% 0.6W
3115	4822 050 21003	10k 1% 0.6W
3116	4822 117 12364	0Ω43 5% 1W
3117	4822 117 12364	0Ω43 5% 1W
3120	4822 117 12833	1k 5% 5W
3121	4822 116 52202	82Ω 5% 0.5W
3122	4822 050 12709	27Ω 1% 0.4W
3123	4822 050 21002	1k 1% 0.6W
3125▲	4822 052 10109	10Ω 5% 0.33W
3126	4822 050 11801	180Ω 1% 0.4W
3130	4822 050 22203	22k 1% 0.6W
3131	4822 050 21003	10k 1% 0.6W
3133	4822 050 21003	10k 1% 0.6W
3134	4822 050 21005	1M 1% 0.6W
3135	4822 050 21003	10k 1% 0.6W
3136	4822 111 50522	33k 5% 1/6W

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3139	4822 050 21003	10k 1% 0.6W
3142	4822 111 50522	33k 5% 1/6W
3143	4822 050 21203	12k 1% 0.6W
3144	4822 050 21002	1k 1% 0.6W
3145	4822 050 22203	22k 1% 0.6W
3146	4822 050 21003	10k 1% 0.6W
3157	4822 050 21002	1k 1% 0.6W
3158	4822 050 23304	330k 1% 0.6W
3159	4822 050 21604	160k 1% 0.6W
3160	4822 050 27502	7k5 1% 0.6W
3161	4822 050 21002	1k 1% 0.6W
3162	4822 050 13304	330k 1% 0.4W
3163	4822 050 25102	5K10 1% 0,6W

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3164	4822 050 24702	4k7 1% 0.6W
3165	4822 101 11743	500Ω LIN CERMET
3166	4822 050 24703	47k 1% 0.6W
3167	4822 050 23902	3k9 1% 0.6W
3168	4822 050 21002	1k 1% 0.6W
3169	4822 050 11801	180Ω 1% 0.4W
3170	4822 050 24701	470Ω 1% 0.6W
3171	4822 050 21002	1k 1% 0.6W
3172	4822 050 21009	10Ω 1% 0.6W
3173	4822 050 21002	1k 1% 0.6W
3174	4822 050 21508	1Ω5 1% 0.6W
3175	4822 050 21508	1Ω5 1% 0.6W
3201	4822 050 21003	10k 1% 0.6W
3202	4822 050 13304	330k 1% 0.4W
3204	4822 050 21003	10k 1% 0.6W
3205	4822 050 13304	330k 1% 0.4W
3208	4822 050 21003	10k 1% 0.6W
3209	4822 050 21002	1k 1% 0.6W
3210	4822 050 21002	1k 1% 0.6W
3216	4822 050 21002	1k 1% 0.6W
3220	4822 050 21002	1k 1% 0.6W
3221	4822 050 24709	47Ω 1% 0.6W
3222	4822 050 24709	47Ω 1% 0.6W
3223	4822 050 11802	1k8 1% 0.4W
3224	4822 050 21002	1k 1% 0.6W
3225	4822 050 21002	1k 1% 0.6W
3226	4822 050 21203	12k 1% 0.6W
3227	4822 050 24702	4k7 1% 0.6W
3403	4822 116 52179	12Ω 5% 0.5W
3404	4822 050 11504	150k 1% 0.4W
3406	4822 111 50522	33k 5% 1/6W
3407	4822 050 25602	5k6 1% 0.6W
3408	4822 050 24709	47Ω 1% 0.6W
3409	4822 050 25601	560Ω 1% 0.6W
3410	4822 050 22203	22k 1% 0.6W
3413	4822 050 21003	10k 1% 0.6W
3415	4822 050 21002	1k 1% 0.6W
3416	4822 050 21002	1k 1% 0.6W
3417	4822 050 21003	10k 1% 0.6W
3418	4822 050 24702	4k7 1% 0.6W
3419	4822 050 23901	390Ω 1% 0.6W
3420	4822 050 21808	1Ω8 1% 0.6W
3421	4822 050 22208	2Ω2 1% 0.6W
3422▲	4822 052 10228	2Ω2 5% 0.33W
3423	4822 050 11802	1k8 1% 0.4W
3424	4822 050 21002	1k 1% 0.6W
3425	4822 050 11802	1k8 1% 0.4W
3426	4822 050 13304	330k 1% 0.4W
3427	4822 050 21002	1k 1% 0.6W
3428	4822 050 22702	2k7 1% 0.6W
3429	4822 050 23901	390Ω 1% 0.6W
3430	4822 050 22203	22k 1% 0.6W
3431	4822 050 21003	10k 1% 0.6W
3433	4822 050 21002	1k 1% 0.6W
3435	4822 050 25102	5k1 1% 0.6W
3436	4822 050 21002	1k 1% 0.6W
3437	4822 050 13302	3k3 1% 0.4W
3502	4822 050 21003	10k 1% 0.6W

3503	4822 050 22203	22k 1% 0.6W
3504	4822 050 22203	22k 1% 0.6W
3505	4822 050 21003	10k 1% 0.6W
3506	4822 050 21003	10k 1% 0.6W
3507	4822 050 21001	100Ω 1% 0.6W
3508	4822 116 52257	22k 5% 0.5W
3509	4822 050 21002	1k 1% 0.6W
3510	4822 050 25104	510k 1% 0.6W
3511	4822 050 24702	4k7 1% 0.6W
3512	4822 050 21003	10k 1% 0.6W
3513	4822 050 24703	47k 1% 0.6W
3515	4822 050 25601	560Ω 1% 0.6W
3516	4822 050 24702	4k7 1% 0.6W
3517	4822 111 50522	33k 5% 1/6W
3518	4822 050 21002	1k 1% 0.6W
3519	4822 050 28202	8k2 1% 0.6W
3520	4822 050 21203	12k 1% 0.6W
3521	4822 053 11473	47k 5% 2W
3523	4822 050 22702	2k7 1% 0.6W
3524	4822 050 28201	820Ω 1% 0.6W
3525	4822 050 13302	3k3 1% 0.4W
3526	4822 050 11504	150k 1% 0.4W
3527	4822 050 21001	100Ω 1% 0.6W
3528	4822 050 21001	100Ω 1% 0.6W
3529	4822 050 21001	100Ω 1% 0.6W
3530	4822 050 21001	100Ω 1% 0.6W
3531	4822 050 21001	100Ω 1% 0.6W
3532	4822 116 81783	1M 5 5% 0.5W
3534	4822 111 50521	100k 5%
3536	4822 050 11504	150k 1% 0.4W
3537	4822 050 12204	220k 1% 0.4W
3538	4822 117 12993	0Ω01 100% 0.4W
3601	4822 050 21002	1k 1% 0.6W
3602	4822 050 21003	10k 1% 0.6W
3603▲	4822 052 10339	33Ω 5% 0.33W
3604	4822 117 11605	5k6 5% 3W
3605	4822 117 12321	1Ω8 5%
3606	4822 050 21001	100Ω 1% 0.6W
3607	4822 050 25601	560Ω 1% 0.6W
3608	4822 050 22203	22k 1% 0.6W
3609▲	4822 052 11101	100Ω 5% 0.5W
3610	4822 117 12994	22Ω 5% 7W
3611▲	4822 052 10108	1Ω 5% 0.33W
3612	4822 050 22203	22k 1% 0.6W
3613	4822 052 10108	1Ω 5% 0.33W
3614▲	4822 052 11108	1Ω 5% 0.5W
3615▲	4822 052 10101	100Ω 5% 0.33W
3616	4822 050 21003	10k 1% 0.6W
3617	4822 050 21203	12k 1% 0.6W
3618	4822 050 21004	100k 1% 0.6W
3619	4822 050 21003	10k 1% 0.6W
3620	4822 050 26803	68k 1% 0.6W
3621	4822 117 12993	0Ω01 100% 0.4W
3622	4822 050 21004	100k 1% 0.6W
3624	4822 050 21003	10k 1% 0.6W
3626	4822 117 12993	0Ω01 100% 0.4W
3627	4822 117 12701	15Ω 1% 0.5W
3628	4822 050 22208	2Ω2 1% 0.6W
3629	4822 111 50522	33k 5% 1/6W
3630	4822 053 11101	100Ω 5% 2W
3631	4822 053 11271	270Ω 5% 2W
3632	4822 050 16802	6k8 1% 0.4W
3633	4822 050 16802	6k8 1% 0.4W
3634	4822 050 21003	10k 1% 0.6W
3635	4822 050 21003	10k 1% 0.6W
3636	4822 050 13903	39k 1% 0.4W
3637	4822 050 13903	39k 1% 0.4W
3638	4822 050 21504	150k 1% 0.6W
3639	4822 050 21504	150k 1% 0.6W
3640	4822 050 21504	150k 1% 0.6W
3641	4822 050 21504	150k 1% 0.6W
3642	4822 050 13903	39k 1% 0.4W
3643	4822 050 13903	39k 1% 0.4W
3644	4822 050 24703	47k 1% 0.6W
3645	4822 111 50521	100k 5%
3646	4822 050 16802	6k8 1% 0.4W
3647	4822 050 16802	6k8 1% 0.4W
3648	4822 050 22702	2k7 1% 0.6W
3649	4822 050 24702	4k7 1% 0.6W
3651	4822 050 26801	680Ω 1% 0.6W
3652	4822 050 23301	330Ω 1% 0.6W
3653▲	4822 052 10109	10Ω 5% 0.33W
3654▲	4822 052 10108	1Ω 5% 0.33W
3655	4822 052 10109	10Ω 5% 0.33W
3656▲	4822 052 11108	1Ω 5% 0.5W
3657▲	4822 052 11108	1Ω 5% 0.5W
3658	4822 050 16804	680k 1% 0.4W
3659	4822 050 21505	1M5 1% 0.6W
3660	4822 050 11504	150k 1% 0.4W
3661	4822 101 11769	20k 20% LIN 0.3W
3662	4822 050 26803	68k 1% 0.6W
3663	4822 116 52251	18k 5% 0.5W
3664	4822 050 28204	820k 1% 0.6W
3665	4822 050 22203	22k 1% 0.6W
3666	4822 050 25602	5k6 1% 0.6W
3667	4822 050 23902	3k9 1% 0.6W
3668	4822 050 24703	47k 1% 0.6W
3669▲	4822 052 11108	1Ω 5% 0.5W
3670	4822 050 12204	220k 1% 0.4W
3671	4822 050 13304	330k 1% 0.4W
3673	4822 050 22204	220k 1% 0.6W
3674	4822 050 21005	1M 1% 0.6W
3675	4822 050 18201	820Ω 1% 0.4W
3676	4822 050 24703	47k 1% 0.6W
3678	4822 050 24705	4M7 1% 0.6W
3679	4822 050 22204	220k 1% 0.6W
3680	4822 050 11802	1k8 1% 0.4W
3681	4822 117 11411	47Ω 1W
3682	4822 050 21002	1k 1% 0.6W
3684	4822 050 22203	22k 1% 0.6W
3685	4822 050 24703	47k 1% 0.6W
3686	4822 050 22203	22k 1% 0.6W
3687	4822 117 12995	330Ω 5% 3W
3689	4822 052 11108	1Ω 5% 0.5W
3690▲	4822 052 11108	1Ω 5% 0.5W
3692	4822 111 50521	100k 5%
3693	4822 117 12993	0Ω01 100% 0.4W
3694	4822 117 12993	0Ω01 100% 0.4W
3696	4822 053 21224	220k 5% 0.5W
3697	4822 053 21104	100k 5% 0.5W
3698	4822 111 50617	2k2 10% 0.5W
3801	4822 117 12985	RES ARRAY 4k7 9A 10P
3802	4822 117 12985	RES ARRAY 4k7 9A 10P
3803	4822 117 12986	RES ARRAY 4k7 6A
3804	4822 050 22201	220Ω 1% 0.6W
3805	4822 050 21001	100Ω 1% 0.6W
3806	4822 050 21001	100Ω 1% 0.6W
3807	4822 050 21001	100Ω 1% 0.6W
3808	4822 050 21001	100Ω 1% 0.6W
3809	4822 050 21001	100Ω 1% 0.6W
3810	4822 111 50522	33k 5% 1/6W
3811	4822 050 21003	10k 1% 0.6W
3812	4822 050 21003	10k 1% 0.6W
3813	4822 050 22201	220Ω 1% 0.6W
3814	4822 050 21001	100Ω 1% 0.6W
3815	4822 050 21001	100Ω 1% 0.6W
3816	4822 050 24702	4k7 1% 0.6W
3817	4822 050 21003	10k 1% 0.6W
3818	4822 050 21003	10k 1% 0.6W
3821	4822 050 21001	100Ω 1% 0.6W
3823	4822 050 22201	220Ω 1% 0.6W
3824	4822 050 22201	220Ω 1% 0.6W
3825	4822 050 22201	220Ω 1% 0.6W
3826	4822 050 22201	220Ω 1% 0.6W
3827	4822 050 13302	3k3 1% 0.4W
3828	4822 050 21003	10k 1% 0.6W
3831	4822 050 23902	3k9 1% 0.6W
3832	4822 050 21203	12k 1% 0.6W

5101▲	3138 178 71700	POWER TRANSFORMER
5102	3138 178 70890	LINE TER 15mH MIN.
5106	4822 152 20587	7.5µH
5107	4822 152 20587	7.5µH
5151	4822 156 21399	CHOKE COIL 180µH PM10 NC3
5152	4822 156 21399	CHOKE COIL 180µH PM10 NC3
5153	4822 157 52234	100µH
5154	4822 157 52234	100µH
5155	4822 157 52234	100µH
5201	4822 242 82202	100mH z 35R
5601	3138 178 71330	DRIVER TRANSFORMER
5602	3138 178 71730	DRUM COIL 20mH
5603	3138 178 71390	CENTERING TRANSF.
5604	4822 157 71509	6mH
5606	4822 157 11502	LINEARITY COIL 2.5µH
5607▲	3138 138 31190	LINE OUTPUT TRANSFORMER
5609	4822 146 10338	TRANSFORMER T/DAF(54A-5021)
5801	4822 157 63211	IND FXD SP0406 A 33U PM10 B
5802	4822 157 63211	IND FXD SP0406 A 33U PM10 B

6102	4822 130 10741	GBU6J
6105	4822 130 34685	BZX79-B75
6106	4822 130 31393	BYT52J
6107	4822 130 31607	RGP10D
6108	4822 130 31393	BYT52J
6109	4822 130 31393	BYT52J
6110	4822 130 31393	BYT52J
6113	4822 130 30621	1N4148
6114	4822 130 34441	BZX79-B22
6115	4822 130 34499	BZX79-B20
6117	4822 130 30842	BAV21
6151	4822 130 80572	RGP30J
6152	4822 130 80572	RGP30J
6153	5322 130 31938	BYV27-200
6154	4822 130 31607	RGP10D
6155	5322 130 31938	BYV27-200
6156	4822 130 30621	1N4148
6157	4822 130 31393	BYT52J
6158	4822 130 31607	RGP10D
6159	4822 130 30842	BAV21
6160	4822 130 34328	BZX79-B30
6161	4822 130 34173	BZX79-B5V6
6162	4822 130 34441	BZX79-B22
6163	4822 130 30621	1N4148
6201	4822 130 31607	RGP10D
6202	4822 130 31607	RGP10D
6203	4822 130 31253	BZX79-C2V4
6204	4822 130 34174	BZX79-B4V7
6205	4822 130 31607	RGP10D
6401	4822 130 32343	BYV26C
6403	4822 130 32343	BYV26C
6404	4822 130 31607	RGP10D
6405	4822 130 32343	BYV26C
6406	4822 130 34233	BZX79-B5V1
6407	4822 130 34499	BZX79-B20
6408	4822 130 34499	BZX79-B20
6409	4822 130 30621	1N4148
6410	4822 130 30621	1N4148
6411	4822 130 34382	BZX79-B8V2
6412	4822 130 30621	1N4148
6413	4822 130 30621	1N4148
6414	4822 130 34197	BZX79-B12
6415	4822 130 34441	BZX79-B22
6416	4822 130 34379	BZX79-B27
6417	4822 130 34281	BZX79-B15
6501	4822 130 30621	1N4148
6502	4822 130 30621	1N4148
6503	4822 130 30621	1N4148
6504	4822 130 34173	BZX79-B5V6
6505	4822 130 30842	BAV21
6506	5322 130 81917	SB140
6507	4822 130 30842	BAV21
6508	4822 130 30621	1N4148
6509	4822 130 30621	1N4148
6601	5322 130 31938	BYV27-200
6602	4822 130 83812	BY459-1500
6603	4822 130 34281	BZX79-B15
6604	4822 130 83539	EGP20G
6605	4822 130 31607	RGP10D
6606	4822 130 31607	RGP10D
6609	4822 130 34233	BZX79-B5V1
6610	4822 130 34382	BZX79-B8V2
6611	4822 130 42489	BYD33G
6615	4822 130 30621	1N4148
6616	5322 130 31969	RGP15M
6617	4822 130 30842	BAV21
6619	4822 130 83128	EGP30G
6620	5322 130 31938	BYV27-200
6621	5322 130 31938	BYV27-200
6622	4822 130 30621	1N4148
6623	4822 130 34328	BZX79-B30
6624	4822 130 34197	BZX79-B12
6625	4822 130 31607	RGP10D
6626	4822 130 31607	RGP10D
6802	5322 130 81917	SB140
6805	4822 130 34173	BZX79-B5V6

7102	5322 130 44779	BC338-40
7103▲	4822 130 11163	MOC8106
7104	4822 130 70025	BUX87P
7105	4822 130 10793	2SK1940-01
	5322 390 20011	VET SILIC.P4 20GR
7106	4822 209 90025	MC44603P
7113	4822 209 81397	TL431CLPST
7152	4822 209 33083	L7808CV
	4822 492 62076	FOR TRANSISTORS
	5322 390 20011	VET SILIC.P4 20GR
	4822 466 11408	INSULATING PLATE
7153	4822 209 80817	L7805CV
7154	4822 130 20297	BT169B
7155	4822 130 63081	BSN254A
7156	4822 130 44196	BC548C
7157	4822 130 44196	BC548C
7158	5322 130 60068	BC558C
7202	4822 209 13706	TDA7053A/N2
7203	5322 130 44752	BD330
7204	4822 130 44196	BC548C
7401	4822 130 44196	BC548C
7402	4822 209 16244	L4990A
7403	4822 130 44196	BC548C
7404	4822 209 32382	TDA4861/V2
	5322 390 20011	VET SILIC.P4 20GR
7405	5322 130 60068	BC558C
7406	4822 130 41594	PH2369
7501	4822 130 44196	BC548C
7502	4822 130 41646	BF423
7503	4822 209 14937	TDA4852/V3

7504	4822 130 44461	BC546B
7505	5322 130 60068	BC558C
7506	5322 130 60068	BC558C
7507	4822 130 44196	BC548C
7601	4822 130 63081	BSN254A
7602	4822 130 11165	BU2523AF

7603	5322 130 44779	BC338-40
7604	4822 130 41715	BC328-40
7605	4822 130 10788	MTP5P25
7606	5322 130 44864	BC517
7607	5322 130 44862	BC516

7608	4822 130 41782	BF422
7609	5322 130 44779	BC338-40
7610	5322 130 60068	BC558C
7611	4822 209 70672	LM358N SEL.
7612	4822 130 44196	BC548C
7613	4822 130 44196	BC548C
7614	5322 130 60684	IRF540
7615	5322 130 60684	IRF540
7616	5322 130 60684	IRF540
7617	5322 130 60684	IRF540
7618	4822 130 44196	BC548C
7619	4822 130 44196	BC548C
7620	4822 130 41594	PH2369
7621	4822 130 63445	MTP6N60
7622	5322 130 60684	IRF540
	4822 492 62076	FOR TRANSISTORS
	5322 390 20011	VET SILIC.P4 20GR
	4822 466 93161	INSULATION PLATE
7623	5322 130 60068	BC558C
7624	4822 130 10799	MPSA44

7626	4822 130 41344	BC337-40
7627	4822 130 40854	BC327
7629	4822 130 44196	BC548C
7630	4822 130 44196	BC548C
7631	4822 130 41646	BF423

7801	4822 209 16251	PC87C380AER/04
7803	5322 130 60068	BC558C
7804		This is an empty IC, please use item "1258" for spare parts ordering.
7805	4822 130 44196	BC548C

1157 Video panel

Various

1157	3138 128 62900	VIDEO PCB ASSY
	4822 701 20292	TAPPING SCREW WITH WASHER
	5322 390 20011	VET SILIC.P4 20GR
1301	4822 701 20045	12P
1306	4822 255 10379	10P
	4822 701 20292	TAPPING SCREW WITH WASHER

Spare parts list

	5322 390 20011	VET SILIC.P4 20GR

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1701	4822 267 10762	11P. MALE
1702	4822 267 10763	10 P. MALE
1703	4822 265 20366	1P PLUG 2.35 DIA - J10 B

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2304	4822 122 33575	220pF 5% 50V
2305	4822 122 33575	220pF 5% 50V
2307	4822 126 13196	100nF 10% **SMD** 25V
2308	4822 122 33177	10nF 20% 50V
2309	4822 126 13196	100nF 10% **SMD** 25V
2310	4822 122 33177	10nF 20% 50V
2311	4822 122 33177	10nF 20% 50V
2321	4822 124 23539	10µF 20% 50V
2322	4822 126 13561	220nF 10% 16V
2323	5322 122 32654	22nF 10% 63V
2324	4822 124 23539	10µF 20% 50V
2325	4822 126 13196	100nF 10% **SMD** 25V
2326	4822 124 80132	47µF 20% 25V
2701	4822 126 13196	100nF 10% **SMD** 25V
2702	4822 126 13196	100nF 10% **SMD** 25V
2703	4822 126 13196	100nF 10% **SMD** 25V
2704	4822 126 13196	100nF 10% **SMD** 25V
2705	4822 126 13196	100nF 10% **SMD** 25V
2706	4822 121 43696	100nF 100V
2707	4822 126 13196	100nF 10% **SMD** 25V
2708	4822 126 13196	100nF 10% **SMD** 25V
2709	4822 124 40246	4.7µF 20% 63V
2721	4822 124 42359	47µF 100V
2722	4822 126 13196	100nF 10% **SMD** 25V
2723	4822 121 43699	220nF 100V
2724	4822 124 42162	1µF 160V
2725	4822 252 60127	DSP-201M-C04F
2726	4822 122 33172	390pF 5% 50V
2731	4822 121 43699	220nF 100V
2732	4822 124 42162	1µF 160V
2733	4822 252 60127	DSP-201M-C04F
2736	4822 122 33172	390pF 5% 50V
2751	4822 121 43699	220nF 100V
2752	4822 124 42162	1µF 160V
2753	4822 252 60127	DSP-201M-C04F
2756	4822 122 33172	390pF 5% 50V
2761	4822 126 13196	100nF 10% **SMD** 25V
2762	4822 124 23539	10µF 20% 50V
2763	5322 126 10223	4.7nF 10% 63V
2771	4822 126 13196	100nF 10% **SMD** 25V
2772	4822 122 33646	470pF 10% 500V
2773	4822 126 14102	1OnF 20% 2KV
2775	4822 124 80531	10µF 20% 250V
2776	4822 124 42359	47µF 100V
2777	4822 124 80132	47µF 20% 25V
2778	4822 126 13196	100nF 10% **SMD** 25V
2779	4822 126 13692	47pF 1% 63V
2780	4822 126 13692	47pF 1% 63V
2781	4822 126 13692	47pF 1% 63V
2782	4822 126 13692	47pF 1% 63V
2783	4822 124 42149	220µF 20% 25V

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3301	4822 051 20759	75Ω 5% 0.1W
3302	4822 051 20759	75Ω 5% 0.1W
3303	4822 051 20759	75Ω 5% 0.1W
3304	4822 117 11503	220Ω 1% 0.1W
3305	4822 050 24702	4k7 1% 0.6W
3306	4822 051 20472	4k7 5% 0.1W
3307	4822 050 21001	100Ω 1% 0.6W
3308	4822 117 10833	10k 1% 0.1W
3309	4822 051 20101	100Ω 5% 0.1W
3310	4822 051 20101	100Ω 5% 0.1W
3311	4822 051 20101	100Ω 5% 0.1W
3318	4822 051 20339	33Ω 5% 0.1W
3319	4822 051 20339	33Ω 5% 0.1W
3320	4822 051 20339	33Ω 5% 0.1W
3321	4822 050 21009	10Ω 1% 0.6W
3322	4822 051 20471	470Ω 5% 0.1W
3323	4822 051 20224	220k 5% 0.1W
3324	4822 051 20332	3k3 5% 0.1W
3325	4822 050 21003	10k 1% 0.6W
3326	4822 117 10833	10k 1% 0.1W
3327	4822 051 20562	5k6 5% 0.1W
3328	4822 051 20182	1k8 5% 0.1W
3329	4822 051 20561	560Ω 5% 0.1W
3330	4822 051 20105	1M 5% 0.1W
3331	4822 117 10833	10k 1% 0.1W
3332	4822 051 20101	100Ω 5% 0.1W
3333	4822 051 20101	100Ω 5% 0.1W
3334	4822 051 20339	33Ω 5% 0.1W
3335	4822 050 28209	82Ω 1% 0.6W
3399	4822 050 24709	47Ω 1% 0.6W
3701	4822 117 11507	6k8 1% 0.1W
3702	4822 117 12955	2k7 1% 0.1W **SMD**
3703	4822 050 24709	47Ω 1% 0.6W
3704	4822 052 10339	33Ω 5% 0.33W
3705	4822 117 10353	150Ω 1% 0.1W
3706	4822 051 20228	2Ω2 5% 0.1W
3707	4822 117 11507	6k8 1% 0.1W
3708	4822 117 12955	2k7 1% 0.1W **SMD**
3709	4822 050 21001	100Ω 1% 0.6W
3710	4822 117 10353	150Ω 1% 0.1W
3711	4822 051 20228	2Ω2 5% 0.1W
3712	4822 117 11507	6k8 1% 0.1W
3713	4822 117 12955	2k7 1% 0.1W **SMD**
3714	4822 050 24709	47Ω 1% 0.6W
3715	4822 117 10353	150Ω 1% 0.1W
3716	4822 051 20228	2Ω2 5% 0.1W
3718	4822 051 20479	47Ω 5% 0.1W
3719	4822 051 20479	47Ω 5% 0.1W
3720	4822 051 20479	47Ω 5% 0.1W
3721	4822 111 50618	82Ω 10% 0.5W
3722	4822 051 20105	1M 5% 0.1W
3723	4822 050 21002	1k 1% 0.6W
3724	4822 050 23303	33k 1% 0.6W
3725	4822 050 22204	220k 1% 0.6W
3726	4822 116 52202	82Ω 5% 0.5W
3727	4822 050 21003	10k 1% 0.6W
3728	4822 051 20101	100Ω 5% 0.1W
3729	4822 051 20479	47Ω 5% 0.1W
3731	4822 111 50618	82Ω 10% 0.5W
3732	4822 050 21005	1M 1% 0.6W
3733	4822 050 21002	1k 1% 0.6W
3734	4822 050 23303	33k 1% 0.6W
3735	4822 050 22204	220k 1% 0.6W
3736	4822 117 11149	82k 1% 0.1W
3737	4822 050 21003	10k 1% 0.6W
3738	4822 051 20101	100Ω 5% 0.1W
3751	4822 111 50618	82Ω 10% 0.5W
3752	4822 050 21005	1M 1% 0.6W
3753	4822 051 20102	1k 5% 0.1W
3754	4822 050 23303	33k 1% 0.6W
3755	4822 050 22204	220k 1% 0.6W
3756	4822 117 11149	82k 1% 0.1W
3757	4822 117 10833	10k 1% 0.1W
3758	4822 051 20101	100Ω 5% 0.1W
3761	4822 050 21002	1k 1% 0.6W
3762	4822 117 10833	10k 1% 0.1W
3763	4822 051 20332	3k3 5% 0.1W
3764	4822 051 20472	4k7 5% 0.1W
3765	4822 117 11507	6k8 1% 0.1W
3771	4822 050 21502	1k5 1% 0.6W
3772	4822 116 80548	15k 5% 0.5W
3776	4822 051 20101	100Ω 5% 0.1W
3777	4822 051 20101	100Ω 5% 0.1W
3778	4822 051 20101	100Ω 5% 0.1W
3781	4822 050 24709	47Ω 1% 0.6W
3782	4822 050 24709	47Ω 1% 0.6W
3783	4822 050 24709	47Ω 1% 0.6W
3784	4822 050 24709	47Ω 1% 0.6W
3785	4822 117 12993	0Ω01 100% 0.4W
3786	4822 117 12993	0Ω01 100% 0.4W
3787	4822 051 20008	0Ω JUMP. (**SMD**)
3788	4822 051 20472	4k7 5% 0.1W
3793	4822 051 20008	0Ω JUMP. (**SMD**)
3794	4822 051 20008	0Ω JUMP. (**SMD**)
3795	4822 051 20008	0Ω JUMP. (**SMD**)
3797	4822 051 20008	0Ω JUMP. (**SMD**)
3798	4822 051 20008	0Ω JUMP. (**SMD**)
3799	4822 051 20008	0Ω JUMP. (**SMD**)

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5301	4822 157 52496	IND FXD SP0305 A 15U PM10 B
5302	4822 242 82202	100mH z 35R
5303	4822 242 82202	100mH z 35R
5304	4822 242 82202	100mH z 35R
5701	4822 157 52496	IND FXD SP0305 A 15U PM10 B
5702	4822 157 53937	IND FXD SPT0305 A 1U8 PM10 R
5703	4822 157 53937	IND FXD SPT0305 A 1U8 PM10 R
5722	4822 157 11503	HIGH FREQ.CHOKE 0.22µH PM10
5731	4822 157 11503	HIGH FREQ.CHOKE 0.22µH PM10
5751	4822 157 11504	HIGH FREQ.CHOKE 0.39µH PM10
5771	4822 157 53189	CHOKE COIL 5.0µH PM10
5781	4822 157 53937	IND FXD SPT0305 A 1U8 PM10 R
5782	4822 157 53937	IND FXD SPT0305 A 1U8 PM10 R
5783	4822 157 53937	IND FXD SPT0305 A 1U8 PM10 R
5784	4822 157 53937	IND FXD SPT0305 A 1U8 PM10 R

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6301	4822 130 34173	BZX79-B5V6
6302	4822 130 34173	BZX79-B5V6
6303	4822 130 34173	BZX79-B5V6
6304	4822 130 34173	BZX79-B5V6
6305	4822 130 80446	BAS32L
6306	4822 130 80446	BAS32L
6307	4822 130 34233	BZX79-B5V1
6308	4822 130 34278	BZX79-B6V8
6701	4822 130 34488	BZX79-B11
6721	4822 130 80877	BAV103
6722	4822 130 80877	BAV103
6723	4822 130 80877	BAV103
6724	4822 130 80877	BAV103
6731	4822 130 30842	BAV21
6732	4822 130 80877	BAV103
6733	4822 130 80877	BAV103
6734	4822 130 80877	BAV103
6751	4822 130 30842	BAV21
6752	4822 130 80877	BAV103
6753	4822 130 80877	BAV103
6754	4822 130 80877	BAV103
6771	4822 130 42489	BYD33G
7301	4822 209 16248	TDA4885/V2

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7304	4822 209 16245	LSC4378P2
7321	4822 130 41448	BF324
7322	4822 130 44196	BC548C
7701	4822 209 15536	LM2405
7721	4822 130 41782	BF422
7722	4822 130 41782	BF422
7731	4822 130 41782	BF422
7732	4822 130 41782	BF422
7751	4822 130 41782	BF422
7752	4822 130 41782	BF422
7761	5322 130 42136	BC848C

1158 Key Ctrl panel

1158	3138 128 63470	KEY CNTR PCB ASSY
1891	4822 276 13949	TACT SWITCH
1892	4822 276 13949	TACT SWITCH
1893	4822 276 13949	TACT SWITCH
1894	4822 276 13949	TACT SWITCH

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3891	4822 273 10347	ENCODER
3894	4822 050 21503	15k 1% 0.6W
3895	4822 050 25102	5k1 1% 0.6W
3896	4822 117 12754	24k 1%
3897	4822 050 22702	2k7 1% 0.6W

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6891	4822 130 83789	L-59GYC

1159 Switch panel

Various

1159	3138 128 63130	DC SW. PCB ASSY
1199	4822 276 13886	SWITCH 2P PUSH BUTTON

1162 Earphone panel

Various

1162	3138 128 62950	EARPHONE PCB ASSY
1211	4822 267 31995	1 P.
1212	4822 267 31995	1 P.

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2281	4822 121 43694	22nF 100V
2282	4822 121 43694	22nF 100V
2283	4822 124 22678	100µF 20% 16V

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3281	4822 050 21001	100Ω 1% 0.6W
3282	4822 050 21001	100Ω 1% 0.6W

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5281	4822 157 10637	100mH z 75R
5282	4822 157 10637	100mH z 75R
5283	4822 157 10637	100mH z 75R

1421 Audio in panel

Various

1421	3138 128 62940	AUDIO IN PCB ASSY
1032	3138 160 20230	STEREO JACK 3,5MM
1033	3138 160 20230	STEREO JACK 3,5MM

Remark: ▲ is safety mark.

Fh: 30 - 86KHz
Fv: 50 - 160Hz

CM23-17"General Description

1. Video pre-amplifier:

The TDA4885 (7301) is a monolithic integrated RGB pre-amplifier for colour monitor system with I2C bus control and OSD mixer. In addition to bus control beam current limiting. The signal are amplified in order to drive output driver LM2405 (77010. Individual black level control (pin 31/26/21 Of 7301) with positive feedback and 3 DAC outputs f(pin 32/27/22) for external cut-off control.

The RGB input signals with nominal signal amplitude of 0.7Vb-w are capacitively coupled (2308/2309/2310) into TDA4885 from a 75 (3301/3302/3303) source and actively clamped to an internal DC voltage during signal black level by CLBL (pin 5) signal from deflection controller. A fast signal blanking is driven by CLBL signal and control bit DISV=1.

The input signal related to the internal reference black level can be simultaneous adjusted by contrast control via I2C bus with 6 bits DAC. For white point adjustment the individual for three channels gain control are driven by I2C bus with 6 bit DAC too.

In the output stage the nominal input signal will be amplified to 2.8Vb-w output color signal at nominal contrast and maximum gain. Individual out put clamping is to set the reference black level of the signal output to a value which corresponds to the extend cut-off voltage of the CRT cathodes, all feedback reference are driven by I2C bus.

The output signal from pre-amplifier R (pin30), G (pin20) and B (pin25) are sent to LM2405 to have around 40Vp-p amplitude, which are AC coupled to the CRT and need to be clamped to cut-off level. These are achieved by the black level clamp circuits 7721, 7722, 6721, 6722, 2724 3723, 3724, 3725, 3726, 3727, 3786 for Red channel, the rest channel are identical to it and all of three channels are control by TDA4885 (R: pin 32, .G: pin22, B: pin 27).

The OSD signal are inserted during fast blanking active period, the OSD and fast blanking signal are generated by OSD IC LS4378.

2.0. Micro controller:

The micro controller P83C830 is monitor micro controller with DDC (DDC1, DDC2B, DDC2B+ and DDC2AB) interface to the PC host. The internal built in hardware can detect sync. presence for the VESA DPMS standard of various display mode with separated (pin 13: H 16; V) or composite sync. (pin15) signal. The digital/analog voltage output can be used to control the video and deflection function of the monitor.

Besides to control two bus driven IC TDA4854 and TDA4885 via I2C bus , micro controller output still handle the rest function as V-DC shift, rotation, brightness, volume, stand-by, off mode, degaussing, LED color, 70/86 KHz, H-unlock detector, ABL, s-cap switch, H-Dc shift, and H-linearity, of course it is USB HUB controller. After alignment the data are stored at EEPROM 7804.

3. Deflection controller:

The TDA4854 is a high performance and efficient solution for autosync monitors. All functions are controllable by I2C bus. TDA4854 provides synchronization processing, horizontal and vertical with full autosync capability, it provides extended function e.g. as a flexible B+ control. and extensive set of geometry control facilities.

The HSYNC (pin15) is the input for horizontal synchronization signal which can be TTL separate or composite sync with positive or negative polarity. The horizontal oscillator capacitor at HCAP (pin 29) for optimum jitter performance the value of 10nF must not be changed. The given value is widely synchronised from 30KHz to 86KHz.

PLL1 phase detector compares the middle of horizontal sync with a fixed point on the oscillator sawtooth voltage. The PLL1 loop filter is connected to HPLL1 (pin 26). Via register HPOS the I2C bus allows a linear adjustment of the relative phase between horizontal sync and oscillator sawtooth (in PLL1 loop). Via registers HPARAL and HPINBAL correction of pin unbalance and parallelogram is done by modulating the phase between oscillator sawtooth and horizontal flyback (in loop PLL2).

The PLL2 phase detector is similar to PLL1 detector and compares the line flyback pulse at HFLB (pin 1) with the oscillator sawtooth voltage. The control currents are independent of horizontal frequency. The PLL2 detector thus compensates for the delay in the external horizontal deflection circuit by adjusting the phase of HDRV (pin8) output pulse.

EWDRV (pin 11) provides a complete EW drive waveform. The components horizontal pincushion, size, corner correction, and trapezium correction are controlled by the registers HPIN, HSIZE, HCOR and HTRAP.

The VSYNC (pin14) is the input for vertical synchronization signal it can be TTL separate or extract from composite sync. with positive or negative polarity. The widely synchronization range from 50 to 160Hz.

The amplitude of the differential output currents at VOUT1 and VOUT2 can be adjusted via register VSIZE. Register VPOS provides a DC shift at the sawtooth output VOUT1 and VOUT2 (pin 13 and pin 12) and the EW drive output EWDRV (pin11) in such a way, that the whole picture moves vertically while maintaining the correct geometry.

The horizontal moiré (also known as video moiré) can be cancelled by controlling register HMOIRE and cancelled vertical moiré (scan moiré) by controlling register VMOIRE.

The B+ function block cab be used for buck converter in feed forward mode. It provides a frequency independent pulse width to control the deflection circuit.

Horizontal deflection:

The horizontal output signal 7503 pin 8 (limited at very low amplitude around 1.4Vp-p) directly fed to driver stage 7601, after boost to about 150Vp-p and amplifies current drive capability it drives output transistor 7602 to reach expected deflection current. The horizontal linearity correction circuits is composed by 4 segment S-cap. switch (7614, 7615, 7616, 7617) and one controllable linearity coil 5606 to get optimised linearity

The B+ control output signal is modulated with geometry control and size control signal together, it directly fed to buck converter 7605 via buffer stage 7603, 7604 to supply an adequate deflection voltage to output stage. The horizontal raster position control circuits is composed by 5603, 6605, 6606, 7606, 7607, 3607, 3608, 3611, 3612, 3613 and 5604 to reach right center position. To correct the tilt symptom while monitor facing the different direction or operating at various place, the rotation coil (plus control ckt. 7611, 7626, 7627...) is need to against the magnetic field changing.

5.0 EHT generator and Vertical output stage:

The EHT generator supplies 25KV anode voltage to picture tube. The generator is fully separated from the horizontal deflection but it is synchronized with the input horizontal sync. signal, this will prevent interference in the picture.

The output voltage is stabilised at 25KV. Feed back is taken from the anode via focus pack and 3659, 3660, 3662, 3661, 3406, 3436, 2419 fed to L4990A pin5 to get very stable EHT so there is no need to compensate the deflection for EHT variation. The out voltage is kept constant by regulating the supply voltage of the EHT output stage. This regulation is done by means of a duty cycle controlled series regulator (7621 controlled by L4990A).

The generator is protected against over beam current (over load) and over voltage (x-ray). Over load protection, if beam current high than 1.2mA then 7405 will be conducted and 12 Vdc directly fed to L4990A pin 14 the whole output will shut down immediately. It is activated if EHT exceed 27.5 - 29.5 KV, the generator will be switched off immediately and a restart can only be made by switching the monitor off and on, this circuits is composed by 6404, 2406, 6415, 6416, 3435 and L4990A.

EHT generator also supply tertiary voltage for concern circuits like:

+/- 13 Vdc and +50Vdc	: for vertical output stage
-150Vdc	: for spot killer
+320Vdc	: for vertical dynamic focus

Under this configuration, stand-by mode just switching off L4990A output (pull pin 7 to ground) to achieve less than 15 Watt consumption.

TDA 4854 vertical differential output pin 12/13 fed to 7404 TDA4861 input pin2/3 and

boost to expected deflection current around 1.5Ap-p.

Audio:

As usual we use one integrated 2 X 1 Watt IC for audio power amplifier, the input signal is 800mVrms and applied 25 speaker to get 1 Watt min. output for each channel. Audio function facilitate with microphone in/out, headphone out for multimedia application..

7.0 Power supply:

The power supply works at a fixed frequency about 40KHz in flyback mode and suitable for universal line input 90-264Vac. The proper PTC for the degaussing part, it working automatically at switch on for about 6 seconds or pushing an external button via OSD under PTC cold condition.

The mains voltage, rectified 6102 (GBU6J) and filtered 2105 (330µF/400V), is applied to the power transformer 5101 which switching the power transistor 7105, transfer the energy to secondary side. Besides, an auxiliary voltage is obtained from the primary side to supply the power controller MC44603 and MHR circuits (mains selection point 180Vac)

The hard start current is supply by rectified mains, current amplifier 7104 is implemented for power saving purpose. The power transformer secondary side rectified and filtered out defined voltages : +190V, +78V, -6.3V, +12V, (+8V, +5V are drop out from +12V). +78V is sensed and subtracted to a stabilized reference voltage; the error signal is amplified and send to PWM circuits via optocoupler, where it is compare with ramp waveform to keep constant voltage output by modulating duty cycle.

The primary current is sensed by the resistor 3116/3117, when current increase to over current threshold point then power shut down immediately. When a short circuits occurs on the outputs at high voltage (+190V, +78V), the primary current increase in such a way that the power supply turns off. As regards to low voltage (+12V, -6.3V, +8V, +5V) output short circuits because of low power consumption increase and primary current does not reach the turn off threshold. For this reason, these output are short circuits protected by extra circuits 7156 (for -6.3V), 7158 (for +12V, +8V, +5V).

An OVP circuits is built inside the power controller, while the voltage Vc above +17V and output is shut down immediately.

Power management off mode is directly short circuits optocoupler pin 2 to ground and let power supply enter burst mode, it delivery out very low power (less than 5 watt).

PHILIPS.INF

Use the information file (philips.inf) for Windows '95

Philips' monitors build in VESA DDC1/2B feature to support Plug & Play requirement for Windows '95. You can install this information file (philips.inf) in order to select your Philips monitor from "Monitor" dialog box in Windows 95 to activate Plug & Play application . The installation procedure based on **Windows '95 OEM Release 2 is specified** as follows,

1. Start Windows '95
2. Click the 'Start' button, point to 'Settings', and then click 'Control Panel'
3. Double-click the 'Display' icon, select the 'Settings' tab, then select "Advanced Properties" tab.
4. Select "Ok" in the "Install From Disk" dialog box.
5. Now, you can see the Philips monitor is appeared.
6. If the model name of Philips monitor is correct, click "Ok" tab in "Select Device" dialog box.
7. Then, click "Close" tab in "Advanced Properties" dialog box.
8. Now, you can select "Refresh Rate" to change monitor resolution

If your Windows '95 version is different or you need more detail installation information, please refer to Windows 95 user's manual.

HFG INSTRUCTIONS

1.High Frequency Generator (HFG)

Supplier
ELECTRO-TECHNIC PRODUCTS
4642 N. RAVENSWOOD AVE.
CHICAGO. ILL. 60640
AREA312, USA
PHONE: 561-2349
TYPE(MODEL) :BD-10-A (240VAC)

2.Condition, if poor focus with:
-Flick on background white
-White level various when adjust focus control (focus knob on flyback x'mer)

3.HFG Procedure:
The operation procedure of this tool is as following,

Step 1. To dis assemble monitor chassis (includes grouding wire)/FHT cap from CRT and let CRT independent.
Step 2. To keep the gap of HFG at max position and the output voltage is almost zero at this moment.
Step 3. To connect CRT Anode to CRT ground by extra grounding wire.
Step 4. To apply HFG output pin to CRT focus pin(s) and power on HFG.
Step 5. To gradually decrease HFG gap to min position (increase the output voltage), and continue the voltage to CRT Focus pin(s) about 2 min.
Step 6. Power off HFG and disconnect CRT anode grounding wire.
Step 7. To re assembly monitor chassis/EHT cap to CRT immediately, then apply signal and power on the monitor as soon as possible. Let the monitor warm up at least 5 min.
Step 8. To re adjust focus/G2 and White balance if necessary.
Step 9. To perform function check according to product specification.

Please be informed that step 7 is the important of this procedure. The monitor should be warm up as soon as possible to prevent CRT cathode low emission.

4. Alternative procedure (before you buy HFG)
-Power off monitor and system
-Remove video pwb
-I/F cable must be connected to PC (keep signal input)
-Power on monitor and system
short circuit for focus pin (see service manual) to ground (eg. metal bracket) with 1 or 2 seconds

Colour monitor

Advanced DDC Programming Kit

(July 01 1997
Revision 2.0)

Service
Service
Service

97.01

Service Information

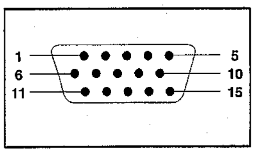
Service information 4822 727 21038 is herewith cancelled.

This [DDC Module (DDC cable)= 4822 320 12004(=4822 724 27550)] and [DDC V2(DDCV2N.EXE) software(3.5" disk)=4822 711 00024(= 4822 724 27560)] are used for "BU Monitor - Chungli product range" which incorporates a DDC1/DDC2B function that allows bi-directional communication between the monitor and PC system for optimal video configuration. [July 01 1997, Revision 2.0] ,which upgrades the software and service information(4822 727 21027 & 4822 727 21038) , is fully compatible with previous one.

Additional information :
Additional information about DDC (Display Data Channel) may be obtained from Video Electronics Standards Association (VESA). Extended Display Identification (EDID) information may be also be obtained from VESA.

Pin assignment

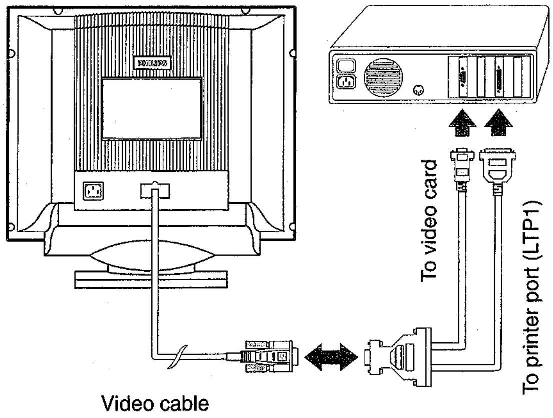
The 15-pin D-sub connector (male) of the signal cable (3 rows) for DDC feature :



Pin No.	Assignment	Pin No.	Assignment
1	Red video input	9	No pin
2	Green video input	10	Logic ground
3	Blue video input	11	Identical output connected to pin 10
4	Identical output connected to pin 10	12	Serial data line (SDA)
5	Ground	13	H.sync
6	Red video ground	14	V. sync (VCLK for DDC)
7	Green video ground		
8	Blue video ground	15	Data clock (SCL)

Connection

(Rear of the monitor)



DDC data re-programming

1. General
   In case the DDC data memory IC, replaced due to a defect the data contents of this IC have to be re- programmed via a PC.
   In case of replacement of the video (or deflection) board it is advised to re-soldered DDC IC from the old board onto the new board, in this case the IC dose not need to be re-programmed.

2. DDCV2N.EXE can be used for :
   EDID Structure Version/Revision

Version : 1
Revision : 0
(text file)

and

Version : 1
Revision : 1
(.hex file)

Published by BU Monitor Printed in The Netherlands ©Copyright reserved Subject to modification Oct. 31 1997 GB 4822 727 21995

PHILIPS

PCS 98 290

DDC Reprogramming Instruction (for PHILIPS Branded models)

System Requirements

DDC Module (DDC cable), P/N = 4822 320 12004
An Intel 386 (or above) PC or compatible
DOS 6.0 or above
DDCV2N.EXE software

Procedure

Connect DDC Cable as shown in cover page.
Insert diskette in Drive a: Select Run "**DDCV2N.EXE**" under DOS or Win.
Press "**Enter**" at the introduction screen

Menu Configuration:

File	R/W	Setup	Quit
Load EDID	Write EDID to EEPROM	Options	
Load txt file (V1.0)	Read From EEPROM	Barcode format	
Save EDID	Edit EDID Code		
Save txt File	Auto Scan		
Convert EDID Code			
Os shell			
Exit			

General :
1. How to change drive

Use arrow keys to highlight "**Options**" under the Setup menu, Press "**Enter**".
Press "**F2**", then Press "**ESC**", fill in "**A**" or "**C**".
[(If your .HEX files for different Model numbers in drive "A", then fill in "A").,
(If your .HEX files for different Model numbers in drive "C", then fill in "C").
Normally, to read DDC data from EEPROM of Monitor is enough.]

Press "**Enter**", then Press "**ESC**"

2. How to select .HEX files for different Model numbers
example:

Use arrow keys to highlight "**Load EDID**" under the File menu, Press "**Enter**"

Bring up
```
BRANDED\
```
Press "**Enter**"

Bring up
```
..\
21B772BE\
CM58\      <— select, Press "Enter"
```

Bring up
```
..\          <— at this highlight area, Press "Enter", then go back to last screen
19A74C.HEX   <— select for 19A580BQ/74C
19A00C.HEX   <— select for 19A580BQ/00C
```

How to write DDC hex files to Monitor

Use arrow keys to highlight "**Options**" under the Setup menu, Press "**Enter**"

Tab down to ID Serial Number, Use down arrow key to place the asterisk (*) beside
"store in DEC with LSB first". Press "**control/enter**" to save.
(Ensure the top asterisk (*) is beside in store in HEX with LSB first.)

Use arrow keys to highlight "**Load EDID**" under the file menu, Press "**Enter**".

Use arrow keys to highlight "**BRANDED**", Press "Enter".

Use arrow keys to highlight "**the model list under subdirectly**", Press "**Enter**".

Use arrow keys to highlight "**Write EDID to EEPROM**" under the R/W menu, Press "**Enter**".

Use arrow keys to highlight "**Read from EEPROM**" under the R/W menu, Press "**Enter**".

Use arrow keys to highlight "**Edit EDID Code**" under the R/W menu, Press "**Enter**".

Verify the ID Serial number on the screen matches the serial number of the unit.

Verify EDID Structure Version is "Version :1, Revision :1

Press "**ESC**"

Use arrow keys to highlight "**Quit**", Press "**Enter**".

Menu Configuration:

File	R/W	Setup	Quit
Load EDID	Write EDID to EEPROM	Options	
Load txt file (V1.0)	Read From EEPROM	Barcode format	
Save EDID	Edit EDID Code		
Save txt File	Auto Scan		
Convert EDID Code			
Os shell			
Exit			

Remark: ID product code and ID Serial Number setting are for "PHILIPS" & "STENCIL" DDC TEXT

INSTRUCTIONS

How to change the Year, Week & Serial number of Monitor (for BRANDED models)

Use arrow keys to highlight "**Barcode format**"," under the Setup menu, Press "**Enter**".

Bring up :

```
Barcode example : 9741222266
Barcode format  : YYWWSSSSSS
-----------------------------------------------------------
```

Fill in 9741222266, press "Enter
Fill in yywwssssss, press "Enter

continue :

```
Barcode example    : 9741222266
Barcode format     : YYWWSSSSSS
-----------------------------------------------------------
Manufacture Year  : 1997
Manufacture Week :  41
Serial no.            :  222266

----------------------------------------------
----------------------------------------------
EDID [16]     Week : 29
EDID [17]     Year  : 07 [Year-1990]
EDID [12..15] S/N.  : 0003643a


data correct  ?  (Y/N) Y
```

Fill in "Y", don't press "Enter"

There is a description at the lower of the screen for Barcode format as below.

Barcode format : Y,W,S,X,- (year,week,s/no,ignore,fixed)

Y stands for "year".
W stands for "week"
S stands for "s/no (serial number)".
X stands for "ignore". Allow user to fill in any 'character' or 'numeric'.
- stands for "fixed". User have to fill in Special 'character' or 'numeric' for "AutoScan" if user fill in '-' at "Barcode format :".

Use arrow keys to highlight "**Auto Scan**" under the R/W menu, Press "**Enter**".

Bring up: Auto Scan ◇◇△△□□□□□□ ← year, week, serial number can be changed

□ SerialNumber
◇ YearCode
△ WeekCode
* don't care

Fill in "Barcode data (for instance: 9741222266)" beside Auto Scan, press "**Enter**"
9745000240
9640001000

Press "**ESC**" "**ESC**", return to R/W menu.

How to change the serial number of Monitor (for PCEC models)

Use arrow keys to highlight "**Barcode format**"," under the Setup menu, Press "**Enter**".

Bring up :

```
Barcode example : 5800C12345678
Barcode format  : XXXXXSSSSSSSS
------------------------------------------------
```

Fill in 5800C12345678, press "Enter
Fill in xxxxxxxsssss, press "Enter

continued :

```
Barcode example    : 5800C12345678
Barcode format     : XXXXXSSSSSSSS
------------------------------------------------
Manufacture Year   : 1997
Manufacture Week   :  40
Serial no.         :  12345678
Serial no. ASCII   :  5800C12345678
.................................
.................................


data correct  ?  (Y/N) Y
```

Manufacture Year: (can be changed), press "Enter"
Manufacture Week: (can be changed), press "Enter"
Serial no. ASCII: Fill in 5800C12345678, press "Enter"
data correct ? (Y/N): Fill in "Y", don't press "Enter"

There is a description at the lower of the screen for Barcode format as below.

Barcode format : Y,W,S,X,- (year,week,s/no,ignore,fixed)

Y stands for "year".
W stands for "week"
S stands for "s/no (serial number)".
X stands for "ignore". Allow user to fill in any 'character' or 'numeric'.
- stands for "fixed". User have to fill in Special 'character' or 'numeric' for "AutoScan" if user fill in '-' at "Barcode format :".

Use arrow keys to highlight "**Auto Scan**" under the R/W menu, Press "**Enter**".

Bring up: Auto Scan ★★★★★□□□□□□□□ ← year, week, serial number can be changed

□ SerialNumber
◇ YearCode
△ WeekCode
★ don't care

Fill in "Barcode data (for instance: 5800C12345678)" beside Auto Scan, press "**Enter**"
5800J28256153
58008H75602720

Press "**ESC**" "**ESC**", return to R/W menu.

DDC DATA TEXT FILE

For the original DDC TEXT file:

Use arrow keys to highlight "**Load txt file (V1.0)**" under the File menu, Press "**Enter**"

1. Data text file editing options
   The data text file can be edited by the DOS-editor.

2. Re-programming instructions
   - Turn on PC and monitor
   - Connect the module to the PC and monitor, see connection figure on front page.
   - Insert the floppy disk into drive A: and follow the following routine:
   - Type "DDC" and then press "ENTER". On the screen it will show:"Adaptor check...", then the screen will display "main menu".
   - Use the arrow keys to highlighting items 1, 2, 3, 4, 0 :

Step 1 - Select item "1",which appear as a highlight,and press "ENTER" to convert a text data into EDID data.
- Enter the text file name with directory path eg. "a:\CM0200\BND14PHL.TXT" and press "ENTER". The available text file on the floppy will now be converted into a binary file that can be downloaded into the memory IC.
- Press "ENTER" to continue, the program will return to main menu.

Step 2 - Select item "2" ,under the main menu , and press "ENTER" to write a complete EDID data file to EEPROM. Now, the data will be loaded into the memory IC.
- Press "ENTER" to continue, the program will return to main menu.

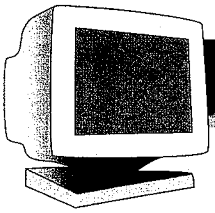
Step 3 - Select item "3" ,under the main menu,and press "ENTER" to verify that EDID downloading is successful. This function also can be used to view current DDC data in monitor.
- Press "ENTER" and follow the indication on the screen to return main menu.

Step 4 - Select item "4" ,under the main menu,and press "ENTER" to enter DOS prompt and DOS Editor of your system. By DOS Editor, the function allow you to modify or update DDC data eg. manufacturing week, serial number etc according to the rear cover type label of the set.
The production serial number of type label consist of:
TY - origin of production centre
00 - technical service change code
95 - production year
12 - production week
123456 - 6 digits (max) serial number

Once the modification of DDC text file is completed under DOS Editor, Quit to DOS prompt and return to main menu by typing "EXIT" and press "ENTER". After text file is modified according above description, you can repeat the process of step 1 to step 3 to re-program DDC data again.

Step 5 - Select item "0" ,under the main menu,and press "ENTER to quit DDC program and return to DOS prompt.

3. Remark 1 :
   During the re-programming, it is recommended to follow step 1,step 2, and step 3.
   Due to different format requirements by customer, If read DDC data from monitor by step 3 , product ID and serial number will show 3 formats, <decimal>, <hexa-decimal>, and <ASCII>, the correct format can be obtained by running step 1 again (the correct format can be detected and identified automatically by step 1 from original text file).



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17B2302Q

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Setting Up *your Philips monitor*

Installation de votre moniteur Philips.

Configuración de su monitor Philips.

This foldout is designed to help you use your monitor as soon as possible. Refer to your owner's manual for detailed information. You may also contact us at our web site: http://www.monitors.be.philips.com

Ce dépliant est conçu pour vous aider à utiliser votre moniteur du plus vite possible. Consulter votre manuel d'utilisateur pour des informations détaillées. Vous pouvez aussi nous contacter sur notre site Web: http://www.monitors.be.philips.com

Esta hoja plegable está diseñada para ayudarle a usar su monitor tan pronto como sea posible. Consulte su manual si desea información detallada. También puede comunicarse con nosotros a través de nuestra página web: http://www.monitors.be.philips.com

Because of a policy continuous product improvement, the information mentioned by this documents are subject to change without notice.
Du fait de notre politique d'amélioration constante de nos produits, les spécifications ci-dessus sont sujettes à modification sans avis préalable.
En el marco de la política de mejora continuada de nuestros productos, las especificaciones arriba indicadas están sujetas a cambio sin previo aviso.

To hook up your monitor to a Macintosh-type computer, follow the steps below. To hook up your monitor to an IBM-compatible computer, follow step 1, then turn over this foldout. In either case, before installing this monitor, please refer to the user's guide of your computer and video adapter to see if this equipment needs any additional setting.

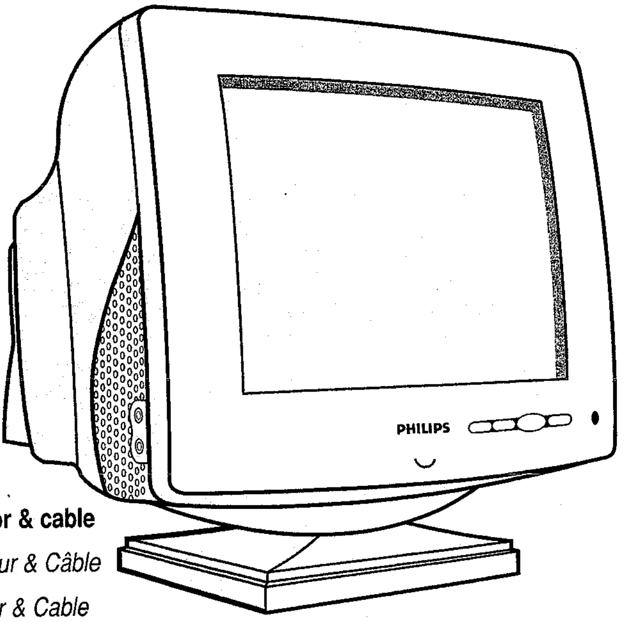
Suivre les étapes suivantes pour connecter votre moniteur à un ordinateur du type Macintosh. Pour connecter votre moniteur à un ordinateur compatible IBM, suivre la première étape, puis tourner ce dépliant. En tout cas, avant l'installation de votre moniteur, veuillez vous référer au manuel d'utilisateur de votre ordinateur et carte vidéo pour voir si cet équipement a besoin d'installation supplémentaire.

Para conectar su monitor a un ordenador tipo Macintosh, siga los pasos que se presentan a continuación. Para conectar su monitor a un ordenador compatible con IBM, siga el paso 1, luego voltee esta página. En ambos casos, antes de instalar este monitor, consulte la guía del usuario de su ordenador y de su adaptador de vídeo, para comprobar si este equipo necesita alguna configuración adicional.

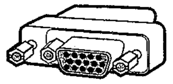
❶ Unpack all the parts.

Déballer toutes les pièces.

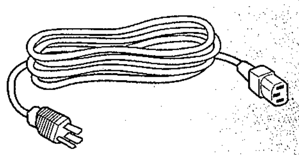
Desembale todas las piezas.



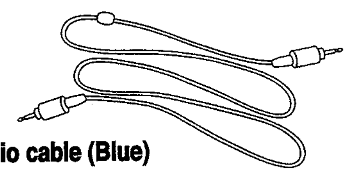
Monitor & cable
Moniteur & Câble
Monitor & Cable



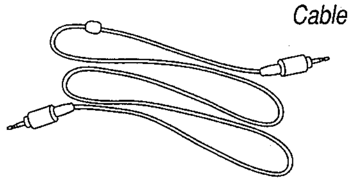
Macintosh adapter (optional)
Carte Macintosh (optionnelle)
Adaptador de Macintosh (opcional)



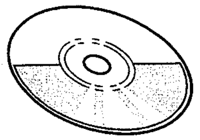
Power cable
(Appearance may vary from actual item enclosed.)
Câble de puissance (l'apparence varie)
Cable de energía (su aspecto puede variar)

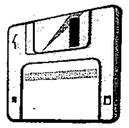


Audio cable (Blue)
Câble audio (Bleu)
Cable de audio (Azul)

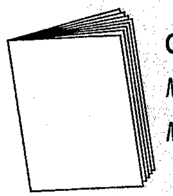


Microphone cable (Red)
Câble du microphone (Rouge)
Cable del micrófono (Rojo)



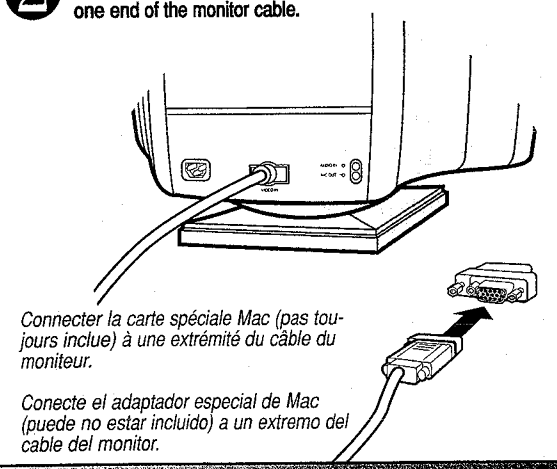


CD ROM or Diskette
CD-ROM ou Disquette
CD ROM or Disco
(Windows 95 driver depends actual item enclosed)



Owner's manual
Manuel d'utilisateur
Manual del propietario

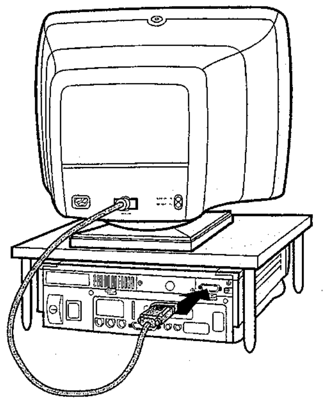
❷ Connect the special Mac adapter (May not be included.) to one end of the monitor cable.



Connecter la carte spéciale Mac (pas toujours inclue) à une extrémité du câble du moniteur.

Conecte el adaptador especial de Mac (puede no estar incluido) a un extremo del cable del monitor.

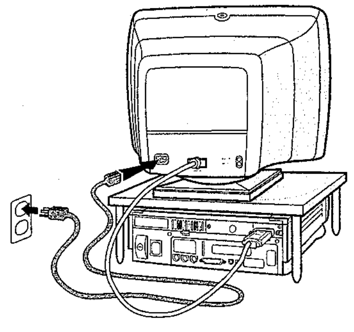
❸ Turn off the computer. Then connect the monitor cable.



Eteindre l'ordinateur, puis connecter le câble du moniteur

Apague el ordenador. Luego conecte el cable del monitor.

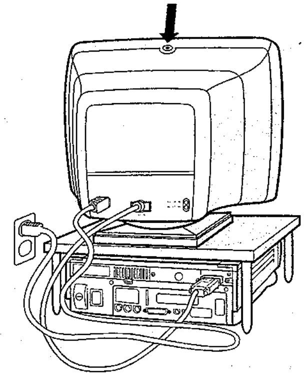
❹ Connect the power cable. Make sure the power plug and the wall socket are easily accessible.



Connecter le câble de puissance. S'assurer que la fiche secteur et la prise murale soient facilement accessibles.

Conecte el cable de energía. Verifique que se pueda acceder fácilmente al tomacorriente y al enchufe de pared.

❺ Turn on the monitor. Then turn on the computer.



Allumer le moniteur, puis l'ordinateur.

Encienda el monitor. Luego encienda el ordenador.

PCS 98 297

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Setting Up *your Philips monitor*

Installation de votre moniteur Philips.

Configuración de su monitor Philips.

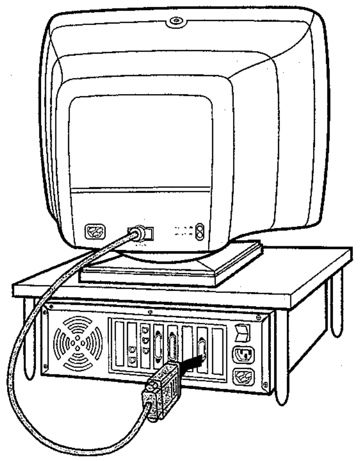
IBM-compatible computer hookup continued from step 1 on other side.

Connecter l'ordinateur compatible IBM, suite de la première étape de l'autre côté.

Conexión del ordenador compatible con IBM (continuación del paso 1 del otro lado de la página).

Monitor Model for Windows'95 Driver:
Philips 107MB (17 inch/CM2300)

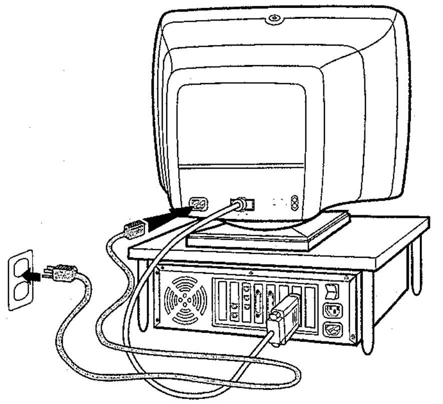
❷ **Turn off the computer. Then connect the monitor cable.**



Eteindre l'ordinateur, puis connecter le câble du moniteur.

Apague el ordenador. Luego conecte el cable del monitor.

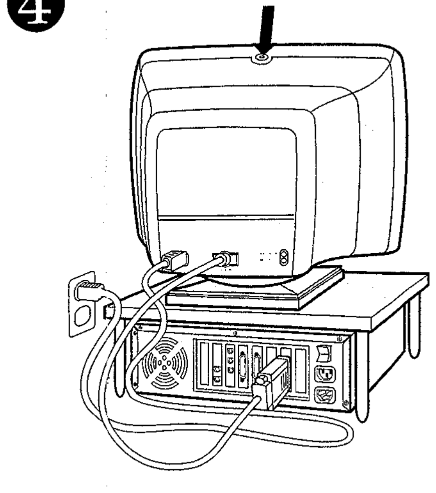
❸ **Connect the power cable. Make sure the power plug and the wall socket are easily accessible.**



Connecter le câble de puissance. S'assurer que la fiche secteur et la prise murale soient facilement accessibles.

Conecte el cable de energía. Verifique que se pueda acceder fácilmente al tomacorriente y al enchufe de pared.

❹ **Turn on the monitor. Then turn on the computer.**



Allumer le moniteur, puis l'ordinateur.

Encienda el monitor. Luego encienda el ordenador.

What to do if your monitor isn't working

Make sure . . .

. . . the Power cable is plugged in the wall and the rear of the monitor.

. . . the Power button on top of the monitor should be in the ON position.

. . . the monitor cable is properly connected to the back of the monitor and the computer.

. . . to check to see if the monitor cable has bent pins.

See page 19 of the owner's manual for troubleshooting tips. Or in North America contact Philips at (800) 835-3506 or (423) 475-0280. For all other regions, see the phone numbers in the warranty appendix in the owner's manual. For warranty questions, please see your owner's manual.

Que faire si votre moniteur ne marche pas

S'assurer . . .

. . . que le câble de puissance soit branché dans le mur et à l'arrière du moniteur.

. . . que le bouton Marche/Arrêt au dessus de votre moniteur soit sur MARCHE.

. . . que le câble du moniteur soit bien connecté à l'arrière du moniteur et de l'ordinateur.

. . . de vérifier que le câble du moniteur n'ait pas de fiches tordues.

Voir page 39 du manuel d'utilisateur pour des conseils de dépannage. Ou bien, en Amérique du Nord, téléphonez à Philips à (800) 835-3506 ou à (423) 475-0280. Pour toute autre région du monde, consultez les numéros de téléphone dans l'appendice de la garantie qui se trouve dans le manual du propriétaire. Si vous avez des questions concernant la garantie, veuillez consulter votre manuel d'utilisateur.

¿QUÉ HACER SI SU MONITOR NO FUNCIONA?

Verifique . . .

. . . si el cable de energía está enchufado a la fuente de energía y a la parte posterior del monitor.

. . . si el botón de alimentación en la parte superior del monitor está en la posición ON.

. . . si el cable del monitor está debidamente conectado a la parte posterior del monitor y del ordenador.

. . . que las clavijas del cable del monitor no estén dobladas.

En la página 59 del manual del propietario encontrará consejos sobre la localización de fallas. O en América del Norte, comuníque con Philips al teléfono (800) 835-3506 (llamada gratis) ó al (423) 475-0280. Para todas las otras regiones, vea los numeros del teléfono en el apéndice de la garantía en el manual del usuario. Para consultas sobre la garantía, consulte el manual del propietario.

If you have Windows '95 . . .

follow these steps to complete setting up your monitor.

1. Start Windows '95 and install diskette supplied with this monitor.
2. Click on the "START" icon. Next, click on the "SETTINGS" icon. Then click on "CONTROL PANEL."
3. Double-click on "DISPLAY" icon. Next, click on "SETTINGS" tab. Then click on "ADVANCED PROPERTIES" dialog box.
4. Click on "MONITOR" tab.

5a. If you have an old computer, click on "CHANGE" dialog box. Next, "SELECT DEVICE" screen appears. Now click on "HAVE DISK" dialog box. and select A drive

Or

5b. If you have a new computer, "SELECT DEVICE" screen automatically appears. Click on "HAVE DISK" dialog box and select A drive.

6. Select "OK" in the "INSTALL FROM DISK" dialog box. If model name of the Philips monitor is correct, click "OK" tab in the "SELECT DEVICE" dialog box.
7. Click "CLOSE" tab in the "ADVANCED PROPERTIES" dialog box. If your Windows '95 version is different or you need more detailed installation information, please refer to the Windows '95 user's manual. **For additional information on the monitor, please refer to the owner's manual.**

Note: if you insert the disk in your B drive, you will make your selections from that drive and not the A drive.

Si vous avez Windows '95 . . .

suivez les étapes suivantes pour terminer l'installation de votre moniteur.

1. Démarrer Windows 95 et installer le disquette fournit avec votre moniteur.
2. Cliquer sur l'icône "DEMARRER", ensuite, cliquer sur l'icône "PARAMETRES", puis cliquer sur l'icône "PANNEAU DE CONFIGURATION".
3. Cliquer deux fois sur l'icône "AFFICHER", ensuite cliquer sur l'onglet "PARAMETRES", puis cliquer sur la boîte de dialogue "PROPRIETES AVANCEES".
4. Cliquer sur l'onglet "MONITEUR".

5a. Si vous avez un ancien ordinateur, cliquer sur la boîte de dialogue "CHANGER". ensuite l'écran "SELECTIONNER UNITE" apparaît. Maintenant cliquer sur la boîte de dialogue "DISQUETTE FOURNIE", et sélectionner le lecteur A.

ou

5b.Si vous avez un ordinateur récent, l'écran "SELECTIONNER UNITE" apparaît automatiquement. Cliquer sur la boîte de dialogue "DISQUETTE FOURNIE" et sélectionner le lecteur A.

6. Sélectionner "OK" dans la boîte de dialogue "INSTALLER A PARTIR DE LA DISQUETTE". Si le nom du modèle de moniteur Philips est correct, cliquer sur l'onglet "OK" dans la boîte de dialogue SELECTIONNER UNITE"
7. Cliquer sur l'onglet "FERMER" dans la boîte de dialogue "PROPRIETES AVANCEES". Si votre version Windows 95 est différente ou si vous voulez des informations plus détaillées sur l'installation, veuillez vous référer au manuel d'utilisateur de Windows 95. **Pour des informations complémentaires sur le moniteur, veuillez vous référer au manuel d'utilisateur.**

Si tiene Windows '95 . . .

siga estos pasos para finalizar la configuración de su monitor.

1. Inicie Windows '95 e instale el disco que se suministra con su monitor.
2. Haga clic en el icono "INICIO". Luego haga clic en el icono "CONFIGURACIÓN". Luego haga clic en "PANEL DE CONTROL".
3. Haga doble clic en el icono "PANTALLA". A continuación haga clic en la etiqueta "CONFIGURACIÓN" y luego en el cuadro de diálogo "PROPIEDADES AVANZADAS".
4. Haga clic en la etiqueta "MONITOR".

5a. Si usted tiene un ordenador viejo, haga clic en el cuadro de diálogo "CAMBIAR". Luego aparece la pantalla "SELECCIÓN DE DISPOSITIVO". Ahora haga clic en el cuadro de diálogo "UTILIZAR DISCO" y seleccione la unidad A.

O

5b. Si tiene un ordenador nuevo, aparece automáticamente la pantalla "SELECCIONAR DISPOSITIVO". Haga clic en el cuadro de diálogo "UTILIZAR DISCO" y seleccione la unidad A.

6. Seleccione "ACEPTAR" en el cuadro de diálogo "INSTALAR DESDE DISCO". Si el nombre del modelo del monitor Philips está correcto, haga clic en la etiqueta "ACEPTAR" del cuadro de diálogo "SELECCIÓN DE DISPOSITIVO".
7. Haga clic en la etiqueta "CERRAR" del cuadro de diálogo "PROPIEDADES AVANZADAS". Si su versión de Windows '95 es diferente o necesita información más detallada acerca de la instalación, consulte el manual del usuario de Windows '95. **Si desea información adicional acerca del monitor, consulte el manual del propietario.**

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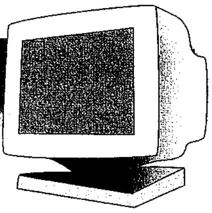
INTRODUCTION AND SAFETY



Introduction

The Philips 107MB color monitor displays sharp and brilliant images of text and graphics with a maximum resolution of 1280x1024 pixels. It is optimal for Windows, CAD / CAM / CAE, desktop publishing, spread sheets, multi-media, and any other application that demands a large screen size and high resolutions.

The monitor automatically scans horizontal frequencies from 30KHz to 86KHz, and vertical frequencies from 50Hz to 160Hz. With microprocessor-based digital-controlled circuitry and On Screen Display (OSD) controls, the monitor can automatically adjust itself to the video card's scanning frequency and can display an image with the precise parameters you desire.

Features

- An anti-glare, anti-static, anti-reflection, high-contrast screen coating eliminates any bad effects caused by room light reflecting on and dust attracted to the screen's surface.
- With the Color Adjustment feature, you can easily choose different preset color temperatures or set your own customized color parameters.
- The Image Tilt Adjustment feature corrects a rotated image. This adjustment compensates for the distortions caused by elements such as the Earth's magnetic field.
- The full-size feature expands the image on the monitor to fill the screen when used in factory preset modes.
- Optional USB Connector at the back of the monitor is prepared for the Universal Serial Bus hub. You can easily and flexibly connect USB-designed devices – such as a mouse or keyboard – to the monitor for true Plug-and-Play function. The USB hub is an accessory that may be purchased from you local Philips dealer.
- Green Design – including automatic power saving function (NUTEK) and low-emission compliance (optional TCO '95) – shows your commitment to the environment.
- DDC1 / DDC2B allows communication between the monitor and the PC for optimal video configuration.
- Moire Cancellation eliminates diffraction, a fringe pattern in the picture.

Note: Your monitor operates according to the VESA-standard DDC level 1 / 2B. Only computers that support the same guidelines and operate at an equal or higher level can use this feature. If your computer does not support the relevant guidelines, you can still use your monitor and computer. However, you may need to manually specify the appropriate resolution in the computer.

As an Energy Star Partner, Philips has determined that this product meets the Energy Star guidelines for energy efficiency.

Contact us at our web site: http://www.monitors.be.philips.com

Safety precautions and maintenance

- Unplug the monitor, if you are not going to use it for an extended period of time.
- Unplug the monitor, if you need to clean it with a slightly damp cloth. Wiping the screen with a dry cloth is okay when the power is disconnected. However, never use alcohol or ammonia-based liquids.
- Consult a service technician if the monitor does not operate normally when following the instructions in this manual.
- The back cover should be removed only by qualified service personnel.
- Keep the monitor out of direct sunlight and away from stoves or any other heat source.
- The top of the monitor is not a shelf. Remove any object that could fall into the vents or prevent proper cooling of the monitor's electronics.
- Keep the monitor dry. To avoid electric shock, do not expose it to rain or excessive moisture.
- Keep the monitor away from magnetic objects, such as speakers, electric motors, transformers, etc.
- When positioning the monitor, make sure the power plug and outlet are easily accessible.

End-of-life disposal

Your new monitor contains materials that can be recycled and reused. Specialized companies can recycle your product to increase the amount of reusable materials and to minimize the amount to be disposed of.

Please find out about the local regulations on how to dispose of your old monitor.

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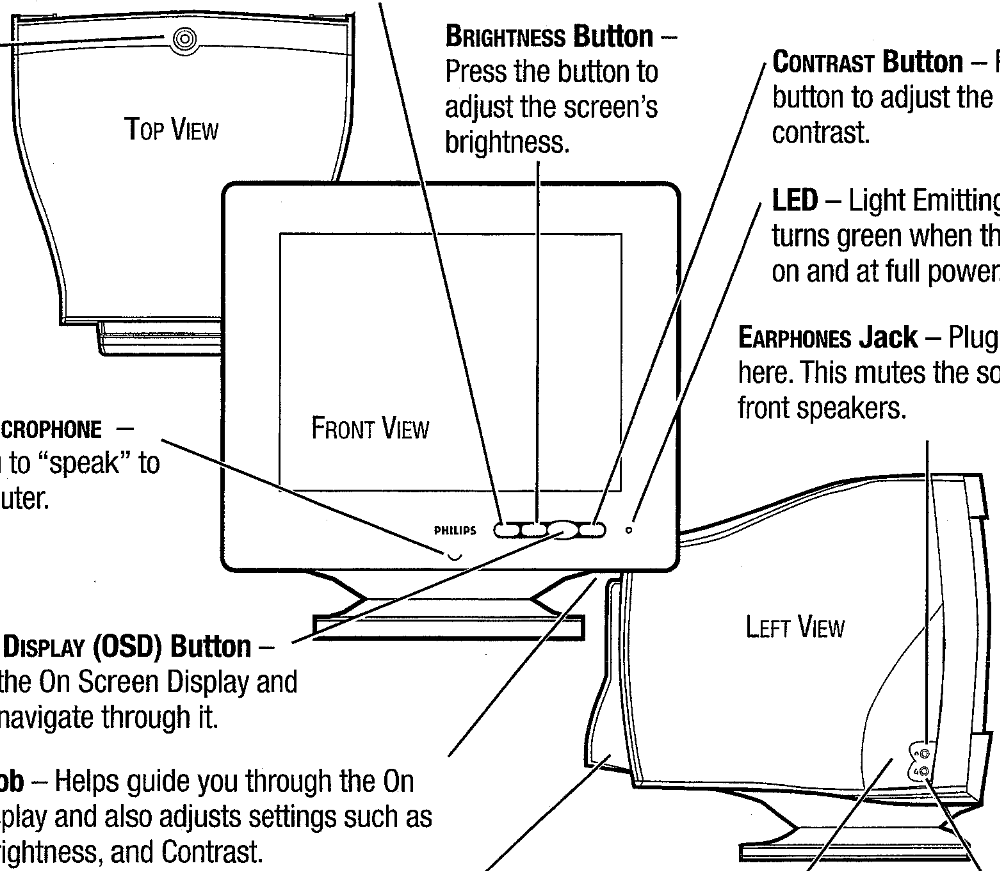
IBM, IBM PC, and Power PC are registered trademarks of International Business Machines Corporation.
Apple, Macintosh, Quadra, Performa, and Centris are registered trademarks of Apple Computer, Inc.

DESCRIPTION OF CONTROLS



VOLUME Button – Press the button to adjust the sound from the speakers.

POWER Button – Turns the electricity On and Off.

BRIGHTNESS Button – Press the button to adjust the screen's brightness.

CONTRAST Button – Press this button to adjust the screen's contrast.

LED – Light Emitting Diode turns green when the monitor is on and at full power.

EARPHONES Jack – Plug in earphones here. This mutes the sound from the front speakers.

BUILT-IN MICROPHONE – Allows you to "speak" to your computer.

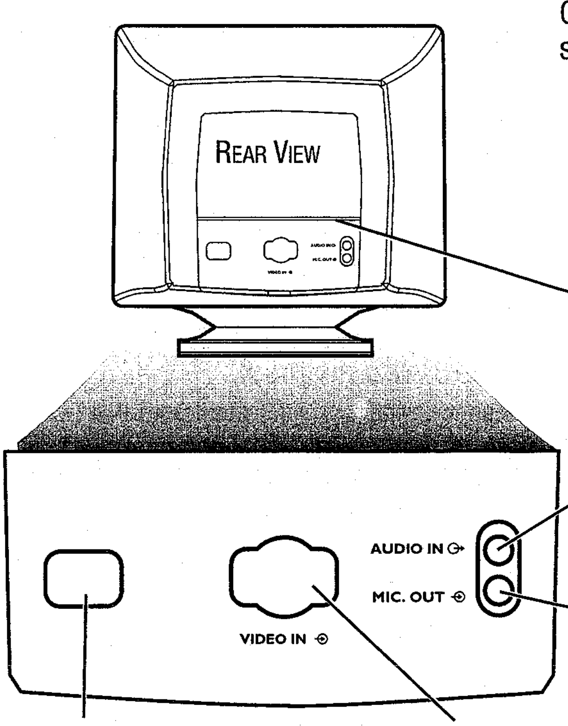
ON SCREEN DISPLAY (OSD) Button – Brings up the On Screen Display and helps you navigate through it.

ROTARY Knob – Helps guide you through the On Screen Display and also adjusts settings such as Volume, Brightness, and Contrast.

CABLE COVER – Snaps onto the back of the monitor to conceal cable connections. (Cable connections in the manual are shown without the cover on.)

SPEAKERS – Transmit sounds from your computer or amplifier. One speaker on each side of the monitor.

MICROPHONE Jack – Plug in a microphone to transmit sound through the side speakers or to the computer. See page 16.



USB Connector (under the edge, optional) – Slot for plugging in the USB Hub-optional hardware that allows true Plug-and-Play. For details, see page 16.

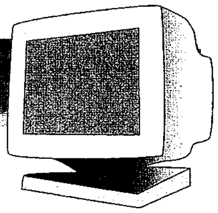
AUDIO IN Jack – Connect the supplied audio cable to send sound from a computer or amplifier to the monitor's speakers.

MICROPHONE OUT Jack – Connect the supplied microphone cable to transmit sound from the monitor to a computer or amplifier.

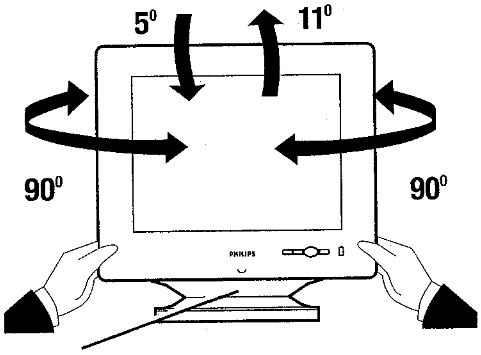
POWER Plug – Plug the power cord in here. See foldout for details.

VIDEO IN Jack – One end of the cable is already connected here. The other end connects to the computer. See foldout for details.

DESCRIPTION OF CONTROLS

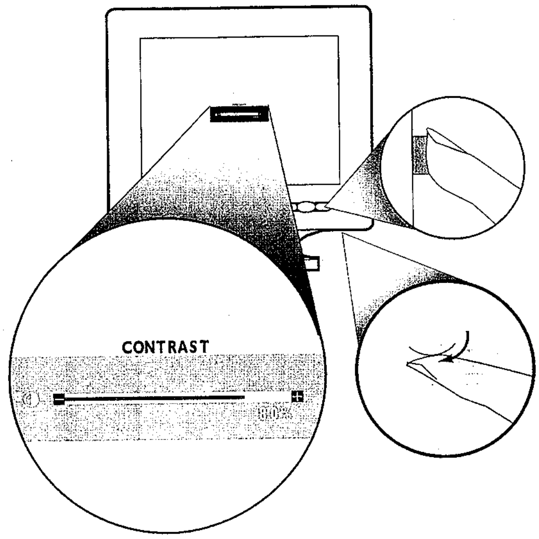


PEDESTAL



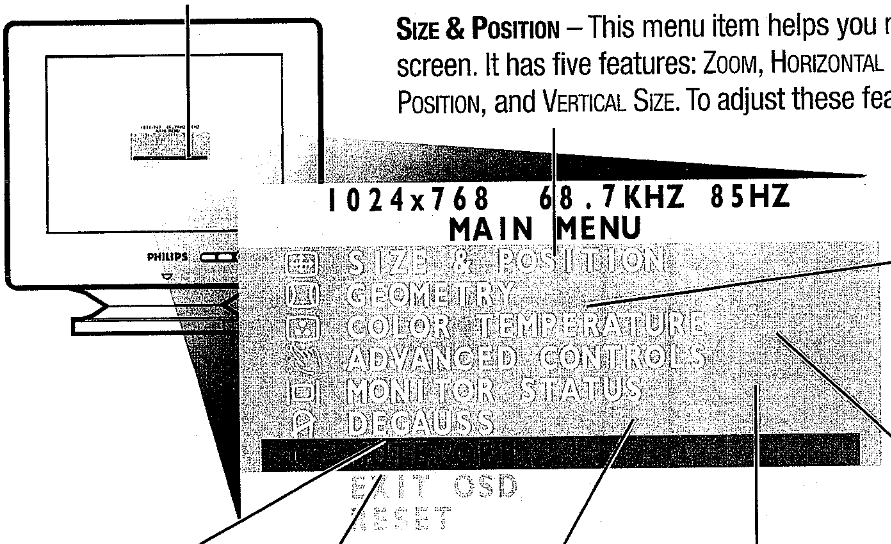
PEDESTAL – With the built-in pedestal, you can tilt and swivel the monitor to the most comfortable viewing angle. To best use your monitor, always place it at eye level.

FRONT PANEL BUTTONS / ROTARY KNOB



USING THE FRONT PANEL BUTTONS – Select one of the four front panel buttons, then use the Rotary knob to make the adjustment or select an additional feature. To adjust a particular feature, see the page for that feature. *For example, Contrast is on page 4.*

ON SCREEN DISPLAY – Your monitor is preset at the factory. However, you can adjust it using the ON SCREEN DISPLAY button and the ROTARY knob described on page 2. The way to do so is through the On Screen Display (OSD). Below is a brief description of the seven On Screen Display windows.



SIZE & POSITION – This menu item helps you maximize the position of your screen. It has five features: ZOOM, HORIZONTAL POSITION, HORIZONTAL SIZE, VERTICAL POSITION, and VERTICAL SIZE. To adjust these features, turn to pages 13 - 14.

GEOMETRY CONTROLS – This menu item has five features: PINCUSHION, BALANCED PINCUSHION, TRAPEZOID, PARALLELOGRAM, and ROTATION. To adjust these features, turn to page 12.

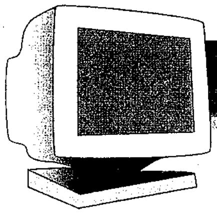
DEGAUSS – Demagnetizes your screen. If color splotches or impurities appear on your screen, you may want to try this. For details, see page 6.

MUTE – Turns the sound from your speakers On or Off. Mute Off is the default. For details, see page 5.

MONITOR STATUS – Lists the current vertical and horizontal scanning frequencies and tells you the serial number of the monitor. For details, see page 6.

ADVANCED CONTROLS – This menu item has six features: POWER SAVING, LANGUAGE, DDC1 / 2B, OSD TIMER, MOIRE, and SYNC INPUT SELECT. To adjust these features, turn to pages 7 - 9. *Note: LANGUAGE allows you to change the On Screen Display from English to French, Spanish, German, or Italian. See page 7 for details.*

COLOR TEMPERATURE – Select the temperature setting for the best color for your work. You can even customize your color settings. There are four selections: 9300° K, 6500° K, USER 1, and USER 2. For details, turn to pages 10 - 11.

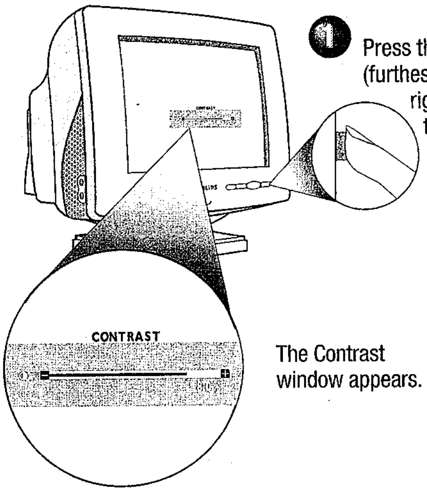


HOW TO USE THE ON SCREEN DISPLAY (OSD)

FRONT PANEL CONTROLS

CONTRAST

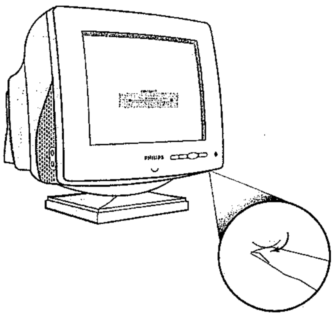
To adjust your screen's contrast, follow the steps below. Contrast is the difference between the light and dark areas on the screen. A 100% contrast level is recommended.



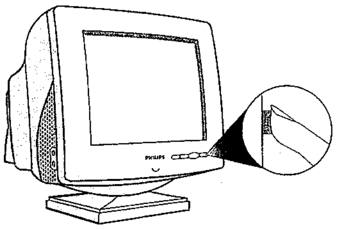
① Press the Contrast button (furthest one on the right) on the front of the monitor.

The Contrast window appears.

② Turn the ROTARY knob (at the lower right-hand corner of the monitor) to adjust the contrast.



③ When finished, press the CONTRAST button again. The Contrast screen disappears.



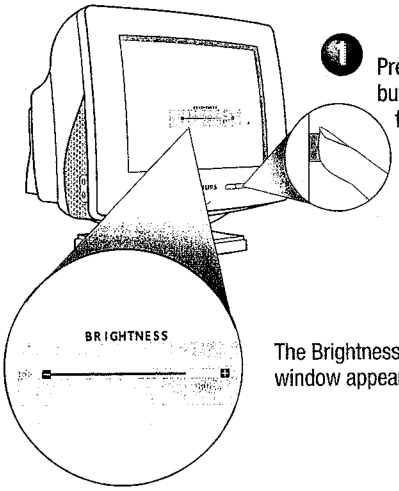
SMART HELP

To continue to Brightness, press the BRIGHTNESS button on the front of the monitor. Next, follow steps 2 - 3 under BRIGHTNESS.

If you do not press the CONTRAST button a second time, the Contrast window will "time out" (disappear) after five seconds. You can change this time. See page 8 for time out options.

BRIGHTNESS

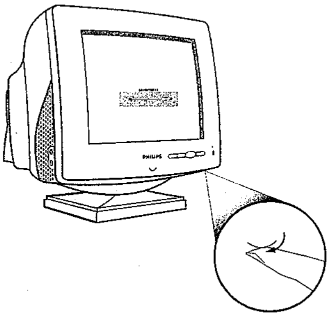
To adjust your screen's brightness, follow the steps below. Brightness is the overall intensity of the light coming from the screen. A 50% brightness level is recommended.



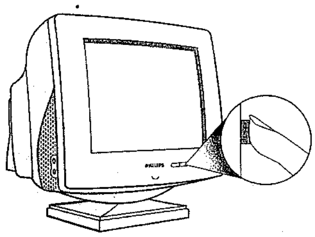
① Press the Brightness button (second one from the left) on the front of the monitor.

The Brightness window appears.

② Turn the ROTARY knob (at the lower right-hand corner of the monitor) to adjust the brightness.



③ When finished, press the BRIGHTNESS button again. The Brightness screen disappears.

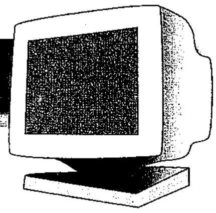


SMART HELP

To continue to Volume, press the VOLUME button on the front of the monitor. Next, follow steps 2 - 3 under VOLUME.

If you do not press the BRIGHTNESS button a second time, the Contrast window will "time out" (disappear) after five seconds. You can change this time. See page 8 for time out options.

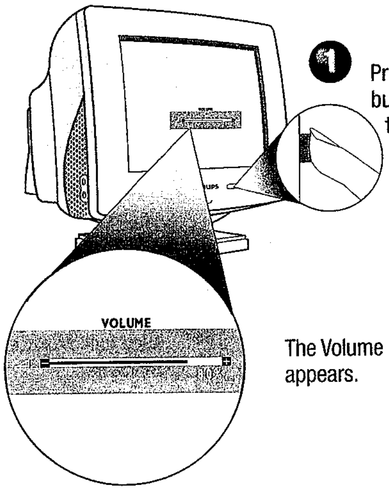
HOW TO USE THE ON SCREEN DISPLAY (OSD)



FRONT PANEL CONTROL / MAIN MENU

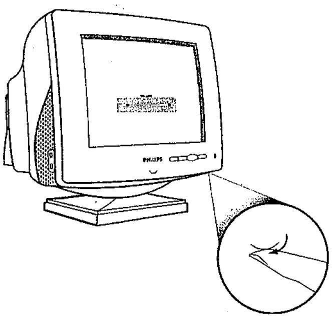
VOLUME

◺ To adjust your monitor's volume, follow the steps below. The volume control adjusts the sound from the two front-mounted speakers or the earphones jack.

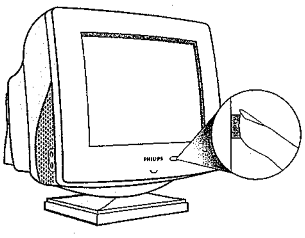


❶ Press the Volume button (first one from the left) on the front of the monitor.

The Volume window appears.



❷ Turn the Rotary knob (at the lower right-hand corner of the monitor) to adjust the volume.



❸ When finished, press the Volume button again. The Volume screen disappears.

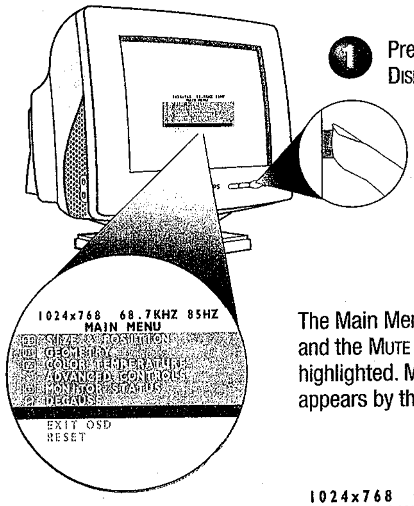
SMART HELP

After Volume Window has disappeared, to continue to the Main Menu, press the larger OSD (On Screen Display) button between the Brightness and Contrast buttons. Next, follow steps 2 - 3 under Mute.

If you do not press the Volume button a second time, the Volume window will "time out" (disappear) after five seconds. You can change this time. See page 8 for time out options.

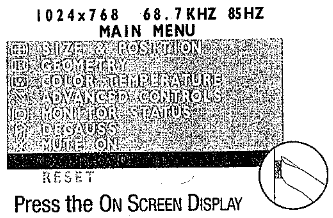
MUTE

🔇 To completely turn off the volume (but still return to the former level), follow the steps below. The mute control turns off the sound from the two front-mounted speakers or the earphones jack. *Note: audio is muted from monitor speakers when earphones are connected. See pages 2 and 16 for details.*

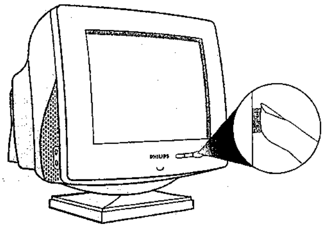

1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
EXIT OSD
RESET

❶ Press the On Screen Display button.

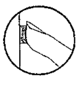
The Main Menu appears and the Mute icon is highlighted. MUTE OFF appears by the icon.


1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
MUTE ON
RESET

❷ Press the On Screen Display button a second time. MUTE ON appears by the icon and EXIT OSD Is highlighted.



❸ Press the On Screen Display (OSD) button a third time to exit the OSD.



❹ To turn the mute off, press the On Screen Display button and repeat steps 2 - 3.

SMART HELP

To go to Degauss . . .

. . . instead of pressing the On Screen Display (OSD) button a third time, turn the Rotary knob until Degauss is highlighted. Next, press the OSD button. Turn to the next page and follow steps 2 - 3.

. . . once you have exited the OSD, press the OSD button and turn the Rotary knob until Degauss is highlighted. Next, press the OSD button. Turn to the next page and follow steps 2 - 3.

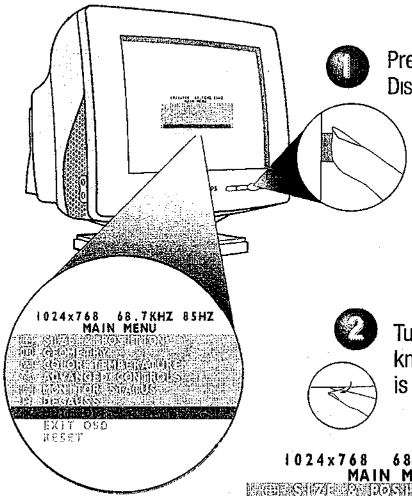
If you do not press the OSD button a third time, the OSD window will "time out" (disappear) after five seconds. You can change this time. See page 8 for time out options.

HOW TO USE THE ON SCREEN DISPLAY (OSD)

MAIN MENU WINDOWS

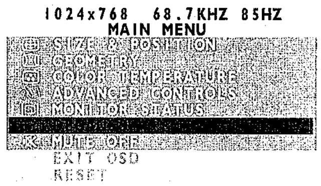
DEGAUSS

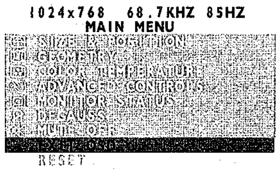
Degaussing removes electromagnetic build up that may distort the color on your screen. To degauss your screen, follow the steps below.

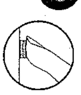

1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
EXIT OSD
RESET

1. Press the ON SCREEN DISPLAY button.

2. Turn the ROTARY knob until DEGAUSS is highlighted.

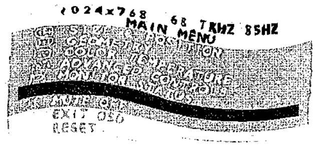

1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
MUTE OFF
EXIT OSD
RESET


1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
MUTE OFF
RESET



3. Press the ON SCREEN DISPLAY button to degauss your screen.

For a moment, the screen will be distorted. Then it will return to normal. You will be at Main Menu. EXIT OSD will be highlighted.


1024x768 68.7KHZ 85HZ
MAIN MENU
EXIT OSD
RESET

SMART HELP

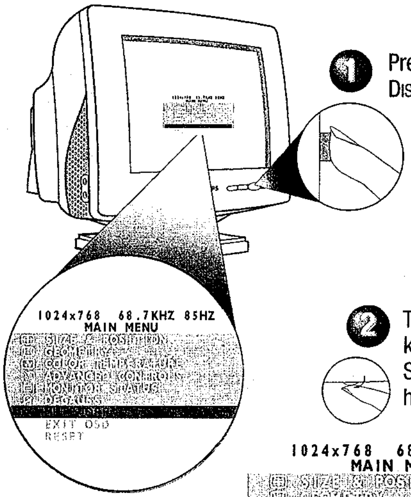
After returning to the Main Menu . . .

. . . *to continue to MONITOR STATUS,* turn the ROTARY knob until MONITOR STATUS is highlighted. Next, follow steps 2 - 3 under MONITOR STATUS in the next column.

. . . *to exit completely,* press the OSD button.

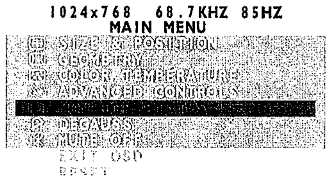
MONITOR STATUS

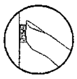
Monitor Status tells you the vertical and horizontal scanning frequencies that your computer is using to operate your monitor. It also tells you the serial number of your monitor. *Note: This screen is for review only.*


1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
EXIT OSD
RESET

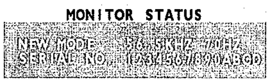
1. Press the ON SCREEN DISPLAY button.

2. Turn the ROTARY knob until MONITOR STATUS is highlighted.


1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
DEGAUSS
MUTE OFF
EXIT OSD
RESET

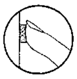


3. Press the ON SCREEN DISPLAY button to bring up the MONITOR STATUS screen.



MONITOR STATUS

NEW MODE 36.5KHZ 70HZ
SERIAL NO. 1234567890ABCD



4. ess the ON SCREEN DISPLAY button to exit the Monitor Status screen and return to the Main Menu. EXIT OSD will be highlighted.

SMART HELP

After returning to the Main Menu . . .

. . . *to continue to ADVANCED CONTROLS,* turn the ROTARY knob until ADVANCED CONTROLS is highlighted. Next, follow steps 2 - 3 under ADVANCED CONTROLS on the next page.

. . . *to exit completely,* press the OSD button.

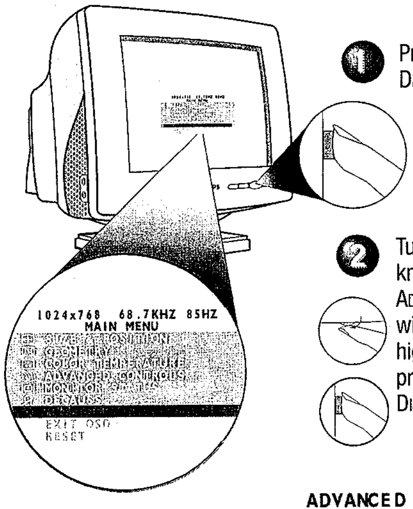
Note: Neither the scanning frequencies nor the serial number can be changed at this screen. The scanning frequencies are established by your computer. They also appear at the top of the Main Menu screen. The serial number is entered at the factory.

HOW TO USE THE ON SCREEN DISPLAY (OSD)

ADVANCED CONTROLS WINDOW

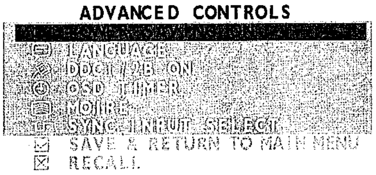
POWER SAVING

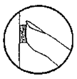
POWER SAVING helps save energy when the monitor is on but not being used. After a preset time, the monitor will go blank if not being used. **"POWER SAVING ON"** is the default setting. To turn POWER SAVING OFF, follow the steps below.


1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
EXIT OSD
RESET

1. Press the ON SCREEN DISPLAY button.

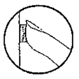
2. Turn the ROTARY knob until the ADVANCED CONTROLS window is highlighted. Next, press the ON SCREEN DISPLAY button.

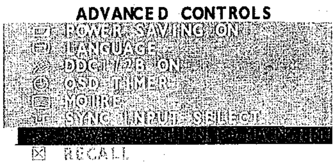

ADVANCED CONTROLS
LANGUAGE
DDC1/2B ON
OSD TIMER
MOIRE
SYNC INPUT SELECT
SAVE & RETURN TO MAIN MENU
RECALL

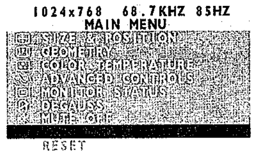


5. Press the ON SCREEN DISPLAY button to exit the Main Menu.

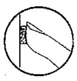
3. Press the ON SCREEN DISPLAY button to change to POWER SAVING OFF.




ADVANCED CONTROLS
POWER SAVING ON
LANGUAGE
DDC1/2B ON
OSD TIMER
MOIRE
SYNC INPUT SELECT
RECALL


1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
MUTE OFF
RESET

4. Press the ON SCREEN DISPLAY button again to save your selection.



SMART HELP

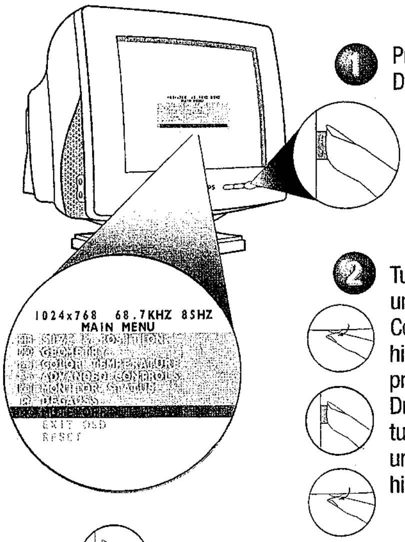
To make other changes in the ADVANCED CONTROLS window . . .

. . . after returning to ADVANCED CONTROLS window [but before pressing the ON SCREEN DISPLAY (OSD) button in STEP 4], turn the ROTARY knob until another feature – for example, LANGUAGE – is highlighted. Next, follow steps 2 - 6 under LANGUAGE.

. . . after you have exited completely, press the OSD button and follow the steps under that feature, for example, LANGUAGE.

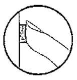
LANGUAGE

The On Screen Display shows its settings in one of five languages. The default is English, but you can select French, Spanish, German, or Italian. To select LANGUAGE, follow the steps below.

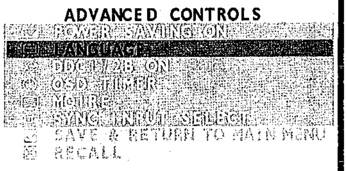

1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
EXIT OSD
RESET

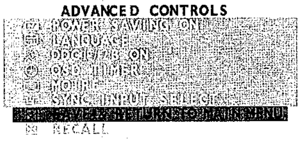
1. Press the ON SCREEN DISPLAY button.

2. Turn the ROTARY knob until the ADVANCED CONTROLS window is highlighted. Next, press the ON SCREEN DISPLAY button. Then, turn the ROTARY knob until LANGUAGE is highlighted.

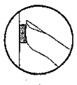


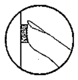
6. Press the ON SCREEN DISPLAY button to exit the Main Menu.

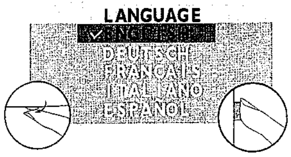

ADVANCED CONTROLS
POWER SAVING ON
LANGUAGE
DDC1/2B ON
OSD TIMER
MOIRE
SYNC INPUT SELECT
SAVE & RETURN TO MAIN MENU
RECALL


ADVANCED CONTROLS
POWER SAVING ON
LANGUAGE
DDC1/2B ON
OSD TIMER
MOIRE
SYNC INPUT SELECT
SAVE & RETURN TO MAIN MENU
RECALL

3. Press the ON SCREEN DISPLAY button to bring up LANGUAGE screen.






LANGUAGE
ENGLISH
DEUTSCH
FRANCAIS
ITALIANO
ESPANOL

5. Press the ON SCREEN DISPLAY button again to save your selection.

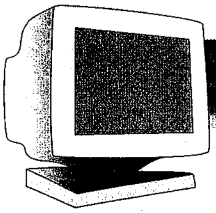
4. Turn the ROTARY knob until the desired language is selected. Then, press the ON SCREEN DISPLAY button. *Note: a checkmark appears beside the current selection.*

SMART HELP

To make other changes in the ADVANCED CONTROLS window . . .

. . . after returning to ADVANCED CONTROLS window [but before pressing the ON SCREEN DISPLAY (OSD) button in STEP 5], turn the ROTARY knob until another feature – for example, DDC1 / 2B – is highlighted. Next, turn to the next page and follow steps 2 - 5 under DDC1 / 2B.

. . . after you have exited completely, press the OSD button and follow the steps under that feature, for example, DDC1 / 2B.

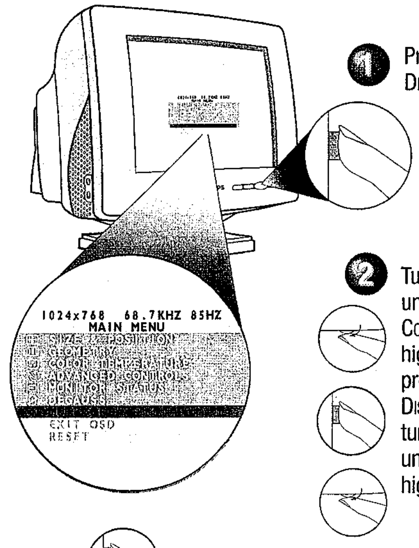


HOW TO USE THE ON SCREEN DISPLAY (OSD)

ADVANCED CONTROLS WINDOW

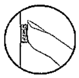
DDC1 / 2B

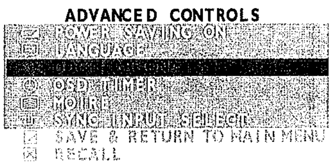
Many newer computers have DDC technology that this monitor takes advantage of to provide you better picture quality. ***"DDC1 / 2B On"*** is the default setting. *If your computer's video card is not DDC compatible, you may experience interference, "noise," or no color on your monitor. If so, try turning this feature off.*


1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
EXIT OSD
RESET

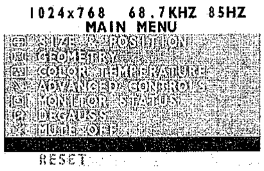
1. Press the On Screen Display button.

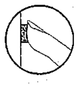
2. Turn the Rotary knob until the Advanced Controls window is highlighted. Next, press the On Screen Display button. Then, turn the Rotary knob until DDC1 / 2B On is highlighted.



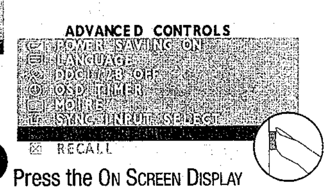

ADVANCED CONTROLS
POWER SAVING ON
LANGUAGE
OSD TIMER
MOIRE
SYNC INPUT SELECT
SAVE & RETURN TO MAIN MENU
RECALL

5. Press the On Screen Display button to exit the Main Menu.


1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
MUTE OFF
RESET



3. Press the On Screen Display button to change to DDC1 / 2B Off.


ADVANCED CONTROLS
POWER SAVING ON
LANGUAGE
DDC1/2B OFF
OSD TIMER
MOIRE
SYNC INPUT SELECT
RECALL

4. Press the On Screen Display button again to save your selection.

SMART HELP

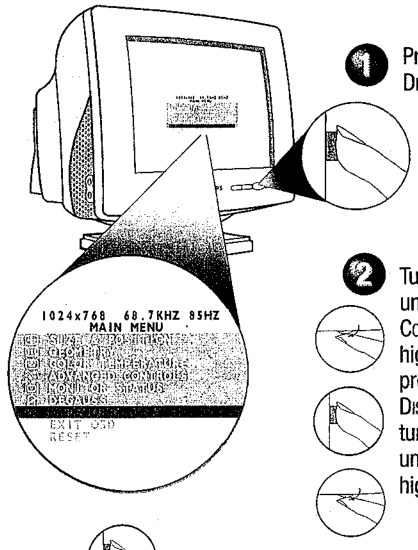
To make other changes in the Advanced Controls window . . .

. . . after returning to Advanced Controls window [but before pressing the On Screen Display (OSD) button in step 4], turn the Rotary knob until another feature – for example, OSD Timer – is highlighted. Next, follow steps 2 - 6 under OSD Timer.

. . . after you have exited completely, press the OSD button and follow the steps under that feature, for example, OSD Timer.

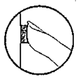
OSD TIMER

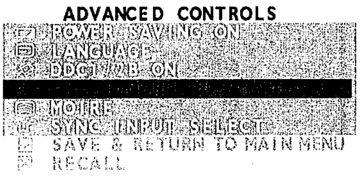
With OSD Timer you can set the time for the On Screen Display to time out. Your choices range from 5 to 50 seconds. To select OSD Timer, follow the steps below. *Note: Ten seconds is the default setting.*


1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
EXIT OSD
RESET

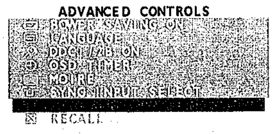
1. Press the On Screen Display button.

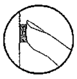
2. Turn the Rotary knob until the Advanced Controls window is highlighted. Next, press the On Screen Display button. Then, turn the Rotary knob until OSD Timer is highlighted.



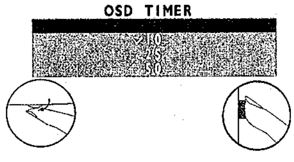

ADVANCED CONTROLS
POWER SAVING ON
LANGUAGE
DDC1/2B ON
MOIRE
SYNC INPUT SELECT
SAVE & RETURN TO MAIN MENU
RECALL

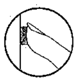
6. Press the On Screen Display button to exit the Main Menu.


ADVANCED CONTROLS
POWER SAVING ON
LANGUAGE
DDC1/2B ON
OSD TIMER
MOIRE
SYNC INPUT SELECT
RECALL



3. Press the On Screen Display button to bring up OSD Timer screen.


OSD TIMER
✓10
25
50



5. Press the On Screen Display button again to save your selection.

4. Turn the Rotary knob until the desired time out period is selected. Then, press the On Screen Display button. *Note: a checkmark appears beside the current OSD timer period.*

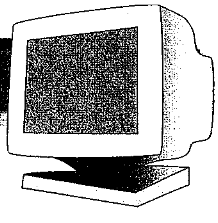
SMART HELP

To make other changes in the Advanced Controls window . . .

. . . after returning to Advanced Controls window [but before pressing the On Screen Display (OSD) button in step 5], turn the Rotary knob until another feature – for example, Moire – is highlighted. Next, turn to the next page and follow steps 2 - 6 under Moire.

. . . after you have exited completely, press the OSD button and follow the steps under that feature, for example, Moire.

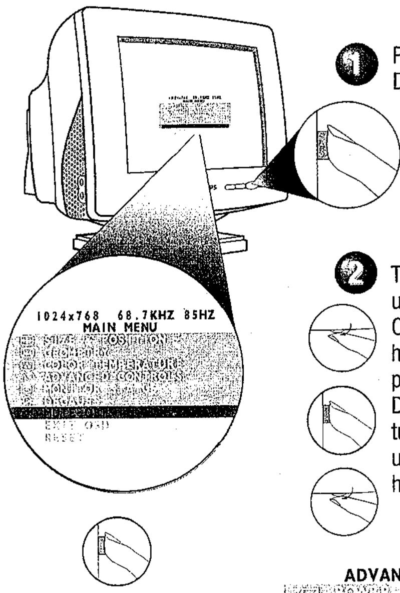
HOW TO USE THE ON SCREEN DISPLAY (OSD)



ADVANCED CONTROLS WINDOW

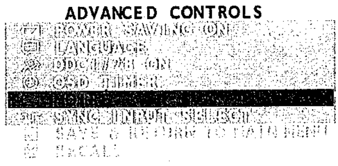
MOIRE

Moire is a fringe pattern arising from the interference between two superimposed line patterns. To adjust your Moire, follow the steps below. *Note: Use only if necessary. Activating Moire can affect sharpness.*

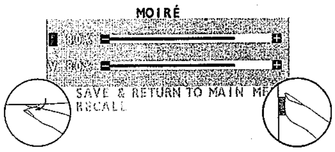

1024x768 68.7KHZ 85HZ
MAIN MENU
EXIT OSD
RESET

1. Press the On Screen Display button.

2. Turn the Rotary knob until the Advanced Controls window is highlighted. Next, press the On Screen Display button. Then, turn the Rotary knob until Moire is highlighted.


ADVANCED CONTROLS
POWER SAVING ON
LANGUAGE
DDC1/2B ON
OSD TIMER
MOIRE
SYNC INPUT SELECT
SAVE & RETURN TO MAIN MENU
RECALL

3. Press the On Screen Display button twice to bring up Moire screen and highlight H(orizontal) Moire.


MOIRÉ
H MOIRE
V MOIRE
SAVE & RETURN TO MAIN ME
RECALL

4. Turn the Rotary knob until the desired Horizontal Moire is selected. Then, press the On Screen Display button.

5. To adjust the Vertical Moire, turn the Rotary knob until V(ertical) Moire is highlighted. Then, press the On Screen Display button again and repeat step 4.

6. Once you have made the adjustments, press the On Screen Display button once to save your changes, then again to exit the Advanced Controls window, and a third time to exit the Main Menu.

SMART HELP

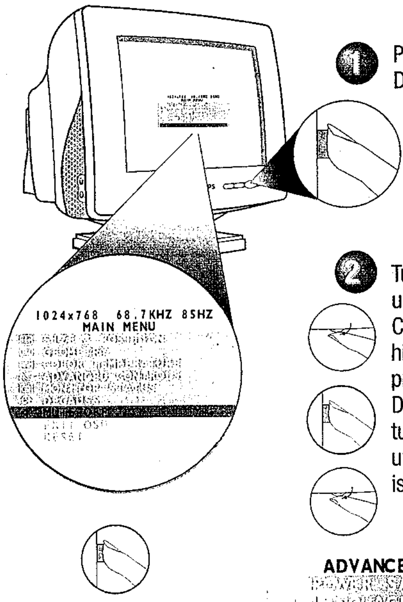
To make other changes in the Advanced Controls window . . .

. . . *after returning to Advanced Controls window [but before pressing the On Screen Display (OSD) button a third time in step 6]*, turn the Rotary knob until another feature – for example, Sync Input Select – is highlighted. Next, follow steps 2 - 6 under Sync Input Select.

. . . *after you have exited completely,* press the OSD button and follow the steps under that feature, for example, Sync Input Select.

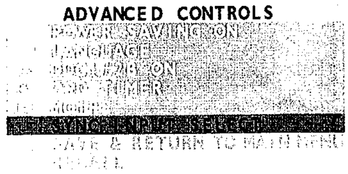
SYNC INPUT SELECT

Sync Input Select synchronizes your monitor with the video card in your computer. In most cases you will not need to use this feature. To adjust your Sync Input Select, follow the steps below. *Note: Use only if necessary. If your screen has a greenish cast to it that cannot be adjusted for with the Color Temperature controls on pages 10 and 11, then try this.*

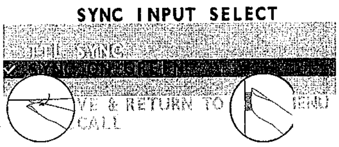

1024x768 68.7KHZ 85HZ
MAIN MENU
EXIT OSD
RESET

1. Press the On Screen Display button.

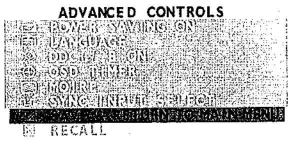
2. Turn the Rotary knob until the Advanced Controls window is highlighted. Next, press the On Screen Display button. Then, turn the Rotary knob until Sync Input Select is highlighted.


ADVANCED CONTROLS
POWER SAVING ON
LANGUAGE
DDC1/2B ON
OSD TIMER
MOIRE
SYNC INPUT SELECT
SAVE & RETURN TO MAIN MENU
RECALL

3. Press the On Screen Display button to bring up Sync Input Select screen.


SYNC INPUT SELECT
TTL SYNC
✓ SYNC ON GREEN
VE & RETURN TO MENU
CALL

4. Turn the Rotary knob until either TTL Sync or Sync on Green is selected. Then, press the On Screen Display button. *Note: a checkmark appears beside the current Sync Input selected.*


ADVANCED CONTROLS
POWER SAVING ON
LANGUAGE
DDC1/2B ON
OSD TIMER
MOIRE
SYNC INPUT SELECT
SAVE & RETURN TO MAIN MENU
RECALL

5. Press the On Screen Display button again to save your selection.

6. Press the On Screen Display button to exit the Main Menu.

SMART HELP

To make other changes in the Main Menu window . . .

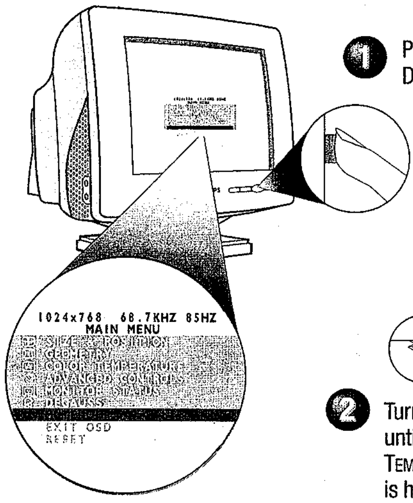
. . . *after returning to the Main Menu [but before pressing the On Screen Display (OSD) button in step 6]*, turn the Rotary knob until another feature – for example, Color Temperature – is highlighted. Next, press the OSD button, turn to the next page and follow steps 2 - 7 under Color Temperature.

. . . *after you have exited completely,* press the OSD button and use the Rotary knob to select that feature, for example, Color Temperature.

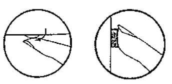
COLOR TEMPERATURE WINDOW

9300° K / 6500° K

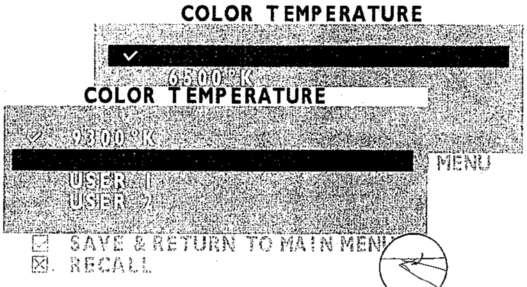
Your monitor has two preset options you select: 9300° K or 6500° K. Computer Aided Design (CAD) usually works best with the 9300° K setting. Desktop Publishing (DTP) usually works best with the 6500° K setting. The screen will change as you scroll between these two settings. Select the one that works best for you, or set up your own setting under USER 1 or USER 2 on the next page.


1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
EXIT OSD
RESET

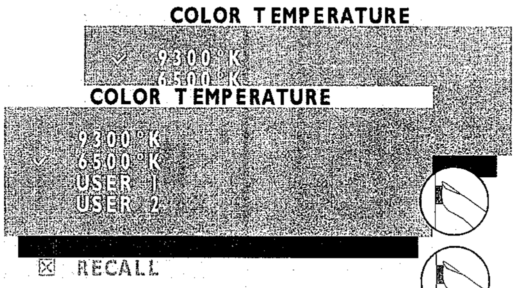
① Press the ON SCREEN DISPLAY button.



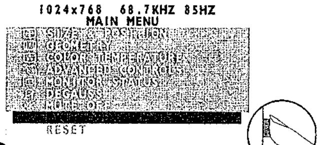
② Turn the ROTARY knob until the COLOR TEMPERATURE window is highlighted. Then press the ON SCREEN DISPLAY button.


COLOR TEMPERATURE
✓
6500° K
COLOR TEMPERATURE
✓ 9300° K
MENU
USER 1
USER 2
☐ SAVE & RETURN TO MAIN MENU
☒ RECALL

③ Turn the ROTARY knob until 9300° K or 6500° K is highlighted. *Note: a checkmark appears beside the current selection.*


COLOR TEMPERATURE
✓ 9300° K
6500° K
COLOR TEMPERATURE
9300° K
✓ 6500° K
USER 1
USER 2
☒ RECALL

④ Press the ON SCREEN DISPLAY button. A checkmark appears by your selection. Press the ON SCREEN DISPLAY button a second time to save your selection.


1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
RESET

⑤ After the preset setting is saved, the on screen display automatically returns to the Main Menu. To exit, press the ON SCREEN DISPLAY button.

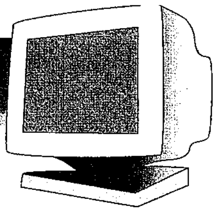
SMART HELP

After returning to Main Menu . . .

. . . *to continue to USER 1 or USER 2,* turn the ROTARY knob until COLOR TEMPERATURE is highlighted. Next, follow steps 2 - 7 under COLOR TEMPERATURE on the next page.

. . . *to select the other preset setting (9300° K or 6500° K),* press the OSD button and repeat steps 2 -5.

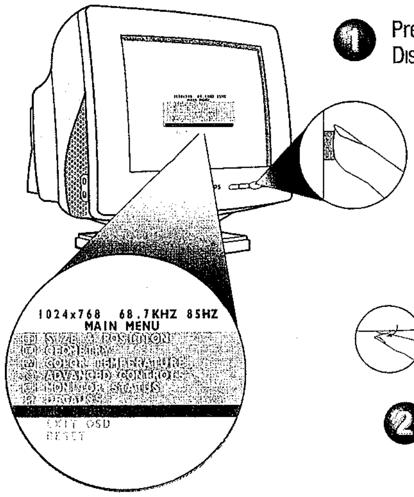
HOW TO USE THE ON SCREEN DISPLAY (OSD)



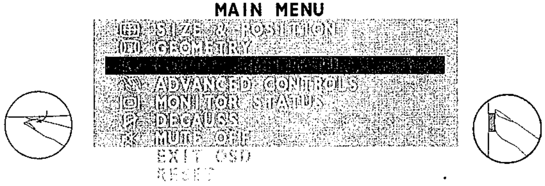
COLOR TEMPERATURE WINDOW

USER 1 / USER 2

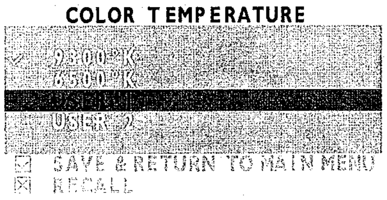
USER 1 and USER 2 allow you to individually set the mixture of red, green, and blue that establishes the color balance on your monitor's screen. You can set up to two presets, then select between them for different tasks. You can only use one preset at a time

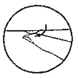

1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
EXIT OSD
RESET

❶ Press the ON SCREEN DISPLAY button.

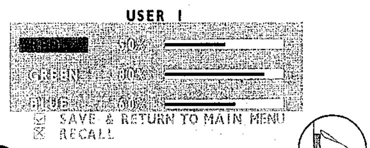

1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
MUTE OFF
EXIT OSD
RESET

❷ Turn the ROTARY knob until the COLOR TEMPERATURE window is highlighted. Next, press the ON SCREEN DISPLAY button.

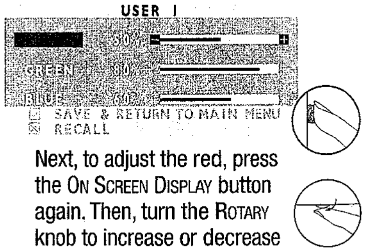

COLOR TEMPERATURE
✓ 9300°K
6500°K
USER 1
USER 2
SAVE & RETURN TO MAIN MENU
RECALL



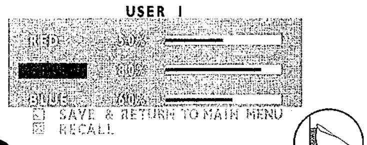
❸ Turn the Rotary knob until User 1 is highlighted. *Note: a checkmark appears beside the current selection.*


USER 1
RED 50%
GREEN 80%
BLUE 60%
SAVE & RETURN TO MAIN MENU
RECALL

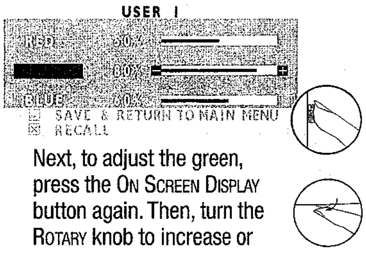
❹ First, press the ON SCREEN DISPLAY button. RED will be highlighted.


USER 1
50%
GREEN 80%
BLUE 60%
SAVE & RETURN TO MAIN MENU
RECALL

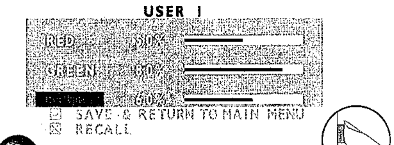
Next, to adjust the red, press the ON SCREEN DISPLAY button again. Then, turn the ROTARY knob to increase or decrease the red.


USER 1
RED 50%
80%
BLUE 60%
SAVE & RETURN TO MAIN MENU
RECALL

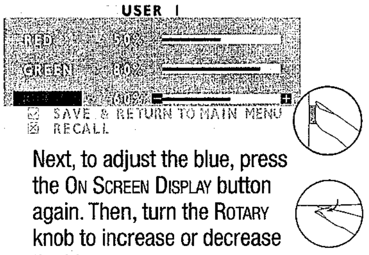
❺ When done with red, press the ON SCREEN DISPLAY button. GREEN will be highlighted.


USER 1
RED 50%
80%
BLUE 60%
SAVE & RETURN TO MAIN MENU
RECALL

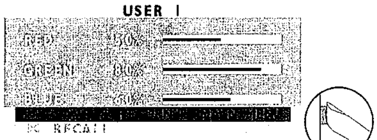
Next, to adjust the green, press the ON SCREEN DISPLAY button again. Then, turn the ROTARY knob to increase or decrease the green.


USER 1
RED 50%
GREEN 80%
60%
SAVE & RETURN TO MAIN MENU
RECALL

❻ When done with green, press the ON SCREEN DISPLAY button. BLUE will be highlighted.


USER 1
RED 50%
GREEN 80%
60%
SAVE & RETURN TO MAIN MENU
RECALL

Next, to adjust the blue, press the ON SCREEN DISPLAY button again. Then, turn the ROTARY knob to increase or decrease the blue.


USER 1
RED 50%
GREEN 80%
BLUE 60%
RECALL

❼ When done with the blue, press the On Screen Display button to save the changes. Next, see SMART HELP below for options.

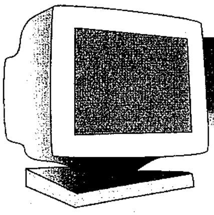
SMART HELP

After returning to COLOR TEMPERATURE . . .

. . . to continue to USER 2, turn the ROTARY knob until User 2 is highlighted. Then, press the ON SCREEN DISPLAY button and follow steps 4 - 7.

. . . to continue to the Main Menu, press the ON SCREEN DISPLAY button once more after completing step 7 above. Now, to select another window from the Main Menu – for example, GEOMETRY – turn to the next page and follow steps 2a - 5c.

. . .to exit the ON SCREEN DISPLAY completely, press the ON SCREEN DISPLAY button twice more after completing step 7 above.

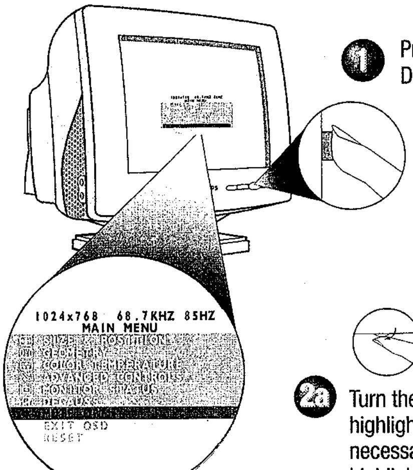


HOW TO USE THE ON SCREEN DISPLAY (OSD)

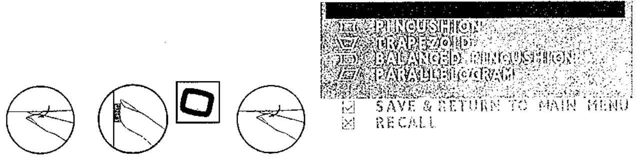
GEOMETRY WINDOW

ROTATION, PINCUSHION, TRAPEZOID, BALANCED PINCUSHION, PARALLELOGRAM

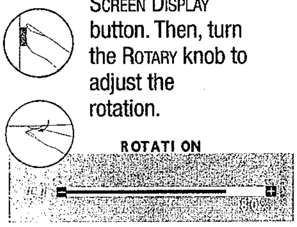
Follow the steps below to adjust any of the five preset options (ROTATION, PINCUSHION, TRAPEZOID, BALANCED PINCUSHION, or PARALLELOGRAM). You can make individual adjustments to each of the preset options. *Note: use these features only when the picture is not square.*


1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEFAULTS
EXIT OSD
RESET

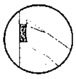
1 Press the ON SCREEN DISPLAY button.


GEOMETRY
PINCUSHION
TRAPEZOID
BALANCED PINCUSHION
PARALLELOGRAM
SAVE & RETURN TO MAIN MENU
RECALL

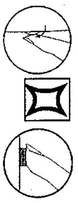
2a Turn the ROTARY knob until the GEOMETRY window is highlighted. Next, press the ON SCREEN DISPLAY button. Then, if necessary, turn the ROTARY knob until ROTATION icon is highlighted.



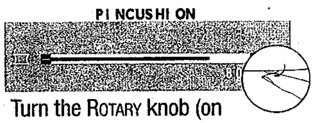
2b Press the ON SCREEN DISPLAY button. Then, turn the ROTARY knob to adjust the rotation.



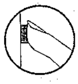
2c When done, press the ON SCREEN DISPLAY button to save the change and return to GEOMETRY window.



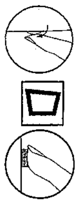
3a To select PINCUSHION, turn the ROTARY knob until PINCUSHION is highlighted. Next, press the ON SCREEN DISPLAY button.


PINCUSHION

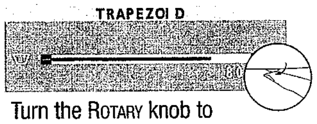
3b Turn the ROTARY knob (on the lower right-hand corner of the monitor) to adjust the pincushion.



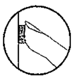
3c When done, press the ON SCREEN DISPLAY button. This will save the change and return the screen to GEOMETRY window.



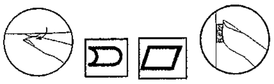
4a To select TRAPEZOID, turn the ROTARY knob until TRAPEZOID icon is highlighted. Next, press the ON SCREEN DISPLAY button.

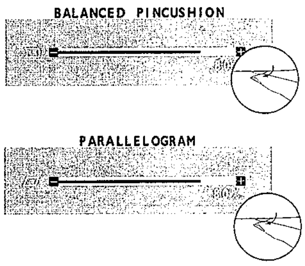


4b Turn the ROTARY knob to adjust the trapezoid.



4c When done, press the ON SCREEN DISPLAY button. This will save the change and return the screen to GEOMETRY window.




BALANCED PINCUSHION
PARALLELOGRAM

5a **5b** **5c** To select BALANCED PINCUSHION or PARALLELOGRAM, turn the ROTARY knob until BALANCED PINCUSHION or PARALLELOGRAM icon is highlighted. Next, press the ON SCREEN DISPLAY button. Then follow steps 4b and 4c to make the appropriate changes.

SMART HELP

To exit GEOMETRY CONTROLS . . .

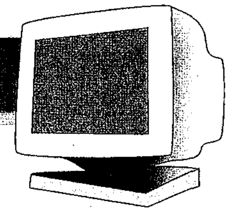
. . . *but continue to another window,* press the ON SCREEN DISPLAY button when "SAVE" is highlighted. Next, turn the ROTARY knob until the desired window – for example – SIZE & POSITION – is highlighted. Now, turn to SIZE & POSITION on the next page and follow the instructions, starting with step 2.

. . . *completely,* press the ON SCREEN DISPLAY button twice. The On Screen Display disappears. All changes will be saved.

To make changes to one item, follow the steps for that item. Then, follow **"To exit GEOMETRY CONTROLS . . . ."**

To return to factory presets, see "To Reset the OSD" on page 15.

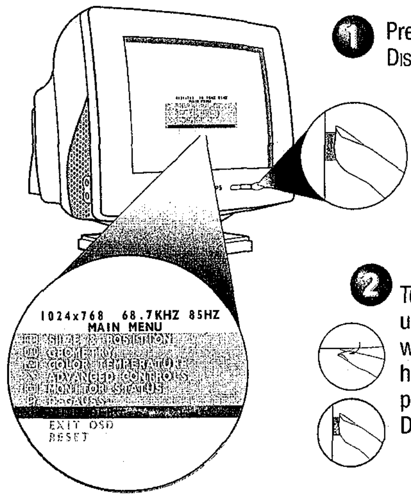
HOW TO USE THE ON SCREEN DISPLAY (OSD)



SIZE & POSITION WINDOW

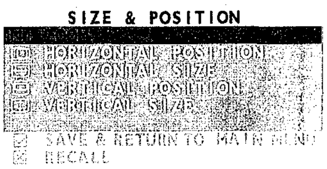
ZOOM

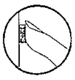
ZOOM allows you to adjust the image on your screen, both enlarging it and reducing its overall size. To zoom your screen in or out, follow the steps below.


1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
EXIT OSD
RESET

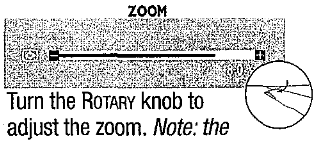
❶ Press the ON SCREEN DISPLAY button.

❷ Turn the ROTARY knob until SIZE & POSITION window is highlighted. Next, press the ON SCREEN DISPLAY button.

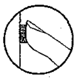

SIZE & POSITION
HORIZONTAL POSITION
HORIZONTAL SIZE
VERTICAL POSITION
VERTICAL SIZE
SAVE & RETURN TO MAIN MENU
RECALL



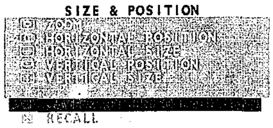
❸ Press the ON SCREEN DISPLAY button to bring up ZOOM screen.

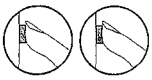


❹ Turn the ROTARY knob to adjust the zoom. *Note: the screen expands or contracts as you adjust the ROTARY knob.*



❺ When you are done, press the ON SCREEN DISPLAY button.


SIZE & POSITION
ZOOM
HORIZONTAL POSITION
HORIZONTAL SIZE
VERTICAL POSITION
VERTICAL SIZE
RECALL



❻ Press the ON SCREEN DISPLAY button to add your change and return to the Main Menu. Press again to exit. See below for other options.

SMART HELP

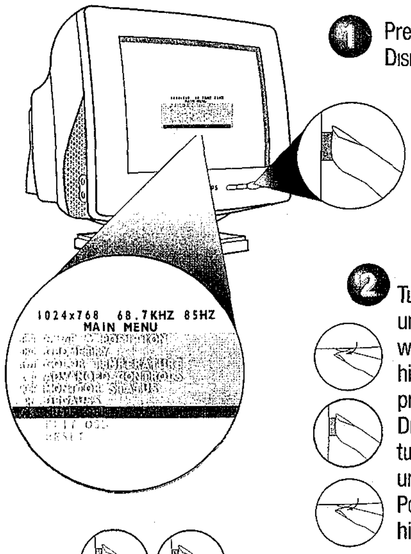
To make other changes in the SIZE & POSITION window . . .

. . . after returning to the SIZE & POSITION window [but before press the On Screen Display (OSD) button in step 6], turn the ROTARY knob until another feature – for example, HORIZONTAL POSITION – is highlighted. Next, follow steps 2 - 6 under HORIZONTAL POSITION.

. . . after you have exited completely, press the OSD button and follow the steps under that feature, for example, HORIZONTAL POSITION.

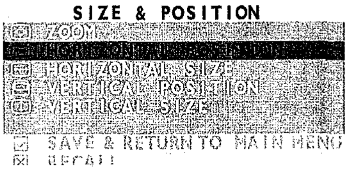
HORIZONTAL POSITION

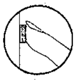
HORIZONTAL POSITION shifts the image on your screen either to the left or right. Use this feature if your image does not appear centered.


1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
EXIT OSD
RESET

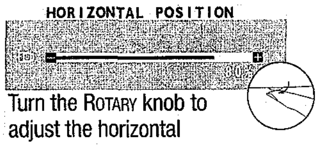
❶ Press the ON SCREEN DISPLAY button.

❷ Turn the ROTARY knob until SIZE & POSITION window is highlighted. Next, press the ON SCREEN DISPLAY button. Then, turn the ROTARY knob until HORIZONTAL POSITION is highlighted.

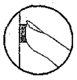

SIZE & POSITION
ZOOM
HORIZONTAL SIZE
VERTICAL POSITION
VERTICAL SIZE
SAVE & RETURN TO MAIN MENU
RECALL



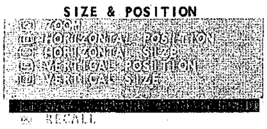
❸ Press the ON SCREEN DISPLAY button to bring up HORIZONTAL POSITION screen.

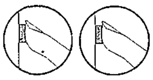

HORIZONTAL POSITION

❹ Turn the ROTARY knob to adjust the horizontal position. *Note: the screen shifts left or right as you turn the ROTARY knob.*



❺ When you are done, press the ON SCREEN DISPLAY button.


SIZE & POSITION
ZOOM
HORIZONTAL POSITION
HORIZONTAL SIZE
VERTICAL POSITION
VERTICAL SIZE
RECALL



❻ Press the ON SCREEN DISPLAY button to add your change and return to the Main Menu. Press again to exit. See below for other options.

SMART HELP

To make other changes in the SIZE & POSITION window . . .

. . . after returning to the SIZE & POSITION window [but before press the On Screen Display (OSD) button in step 6], turn the ROTARY knob until another feature – for example, HORIZONTAL SIZE – is highlighted. Next, follow steps 2 - 6 under HORIZONTAL SIZE.

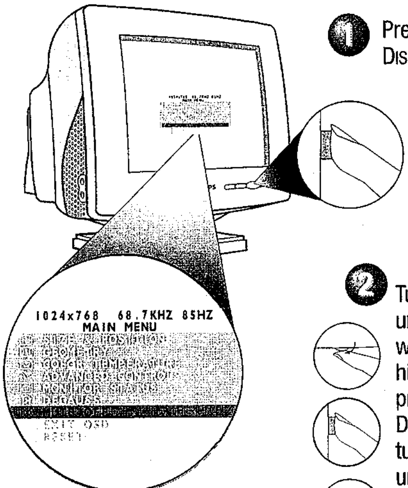
. . . after you have exited completely, press the OSD button and follow the steps under that feature, for example, HORIZONTAL SIZE.

HOW TO USE THE ON SCREEN DISPLAY (OSD)

SIZE & POSITION WINDOW

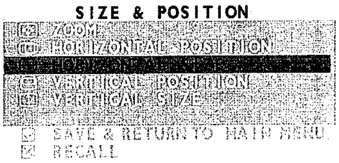
HORIZONTAL SIZE

Horizontal Size expands or contracts the image on your screen, pushing it out toward the left and right sides or pulling it in toward the center.

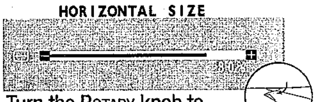

1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEFAULTS
EXIT OSD
RESET

1. Press the On Screen Display button.

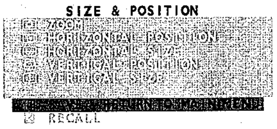
2. Turn the Rotary knob until Size & Position window is highlighted. Next, press the On Screen Display button. Then, turn the Rotary knob until Horizontal Size is highlighted.


SIZE & POSITION
ZOOM
HORIZONTAL POSITION
VERTICAL POSITION
VERTICAL SIZE
SAVE & RETURN TO MAIN MENU
RECALL

3. Press the On Screen Display button to bring up the Horizontal Size screen.


HORIZONTAL SIZE
80%

4. Turn the Rotary knob to adjust the horizontal size. *Note: the screen expands or contracts as you turn the Rotary knob.*


SIZE & POSITION
ZOOM
HORIZONTAL POSITION
HORIZONTAL SIZE
VERTICAL POSITION
VERTICAL SIZE
RECALL

5. When you are done, press the On Screen Display button.

6. Press the On Screen Display button to add your change and return to the Main Menu. Press again to exit. See below for other options.

SMART HELP

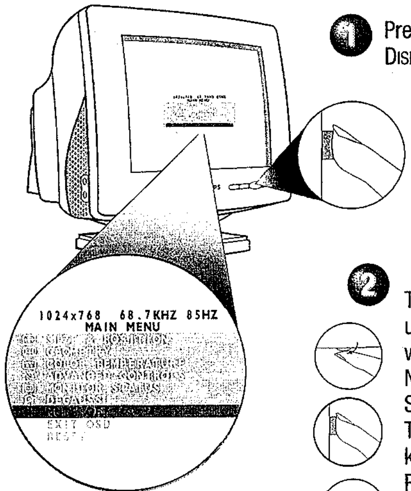
To make other changes in the Size & Position window . . .

. . . after returning to the Size & Position window [but before press the On Screen Display (OSD) button in step 6], turn the Rotary knob until another feature – for example, Vertical Position – is highlighted. Next, follow steps 2 - 6 under Vertical Position.

. . . after you have exited completely, press the OSD button and follow the steps under that feature, for example, Vertical Position.

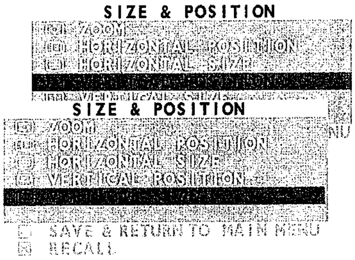
VERTICAL POSITION
VERTICAL SIZE

Vertical Position adjusts the image on your screen either up or down. Use this feature if your image does not appear centered. Vertical Size expands or contracts the image on your screen, pushing it out toward the top and bottom of pulling it in toward the center.

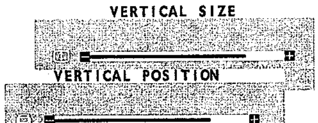

1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEFAULTS
EXIT OSD
RESET

1. Press the On Screen Display button.

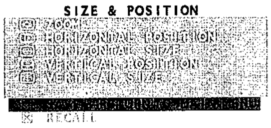
2. Turn the Rotary knob until Size & Position window is highlighted. Next, press the On Screen Display button. Then, turn the Rotary knob until Vertical Position or Vertical Size is highlighted.


SIZE & POSITION
ZOOM
HORIZONTAL POSITION
HORIZONTAL SIZE
SIZE & POSITION
ZOOM
HORIZONTAL POSITION
HORIZONTAL SIZE
VERTICAL POSITION
SAVE & RETURN TO MAIN MENU
RECALL

3. Press the On Screen Display button to bring up the Vertical Position or Vertical Size screen.


VERTICAL SIZE
VERTICAL POSITION
80%

4. Turn the Rotary knob until the image is vertically balanced or the vertical size you want.


SIZE & POSITION
ZOOM
HORIZONTAL POSITION
HORIZONTAL SIZE
VERTICAL POSITION
VERTICAL SIZE
RECALL

5. When you are done, press the On Screen Display button.

6. Press the On Screen Display button to add your change and return to the Main Menu. Press again to exit. See below for other options.

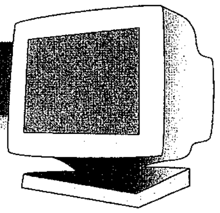
SMART HELP

To make other changes in the Main Menu . . .

. . . after returning to the Main Menu [but before press the On Screen Display (OSD) button a second time in step 6], turn the Rotary knob until another feature is highlighted. Next, turn to the page for that feature and follow the steps.

. . . after you have exited completely, press the OSD button and follow the steps under that feature.

HOW TO USE THE ON SCREEN DISPLAY (OSD)

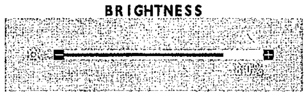


SAVE, CANCEL, EXIT OSD, AND RESET

SAVE & RECALL FROM A WINDOW

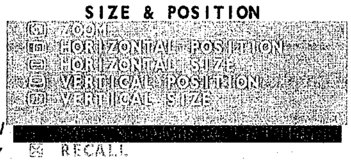
There are three ways to save your changes: by pressing the Front Panel Button, by selecting SAVE from the On Screen Display, or by letting the On Screen Display time out. Each method saves the changes you have made in a particular window.

❶ For example, to make a change in the brightness, press the BRIGHTNESS button on the front panel, make your change, then press the BRIGHTNESS button again. (See page 4 for details.) You can also let the display time out and the change will be saved. Note: Brightness, Contrast, and Volume do not have a SAVE menu selection.


BRIGHTNESS
80%

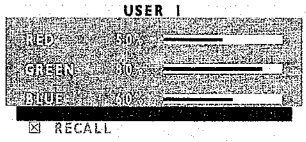
To cancel a change made in the Brightness, Contrast, and Volume windows individually, you must reenter each window and change the setting.

❷ In some windows (SIZE & POSITION and GEOMETRY), you can save all your changes at once. In the SIZE & POSITION window, you can make changes to each of the five items. When you are done, highlight the SAVE item and press the ON SCREEN DISPLAY button. (See pages 13 - 14 for details.) You can also let the display time out and the change will be saved.


SIZE & POSITION
ZOOM
HORIZONTAL POSITION
HORIZONTAL SIZE
VERTICAL POSITION
VERTICAL SIZE
RECALL

To cancel a change made in the SIZE & POSITION window, you can select CANCEL from the On Screen Display. If you have made a change to only one item – for example, ZOOM – then only ZOOM will be changed back to the previous setting. If more than one item has been changed, but not saved individually, then all the items changed will be returned to their previous settings. For example, if you made changes to ZOOM, HORIZONTAL SIZE, and VERTICAL POSITION and did not save them individually, all three will be changed back when you select Cancel.

❸ In some windows (ADVANCED CONTROLS AND COLOR TEMPERATURE), only individual saves are possible. For example, in the COLOR TEMPERATURE window, if you select USER 1 and make changes (See page 11 for details.), you must either save or cancel those changes before moving on. While you could wait for the USER 1 window (below) to time out, it is not recommended. Since you have not formally saved this change as your selection, the next time you go into the COLOR TEMPERATURE window, the screen will change to selection (USER 1, USER 2, 9300° K, or 6500° K) last stored by using SAVE. A checkmark appears beside that selection.


USER 1
RED 50%
GREEN 80%
BLUE 60%
RECALL

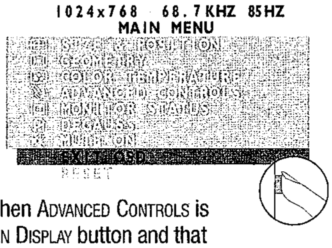
To cancel a change made in COLOR TEMPERATURE (or ADVANCED CONTROLS), select CANCEL from the on screen display. Only the last item changed will be changed back. All other items will remain unchanged.

EXIT OSD & RESET FROM THE OSD

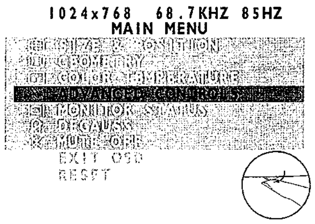
Exiting from the On Screen Display removes the On Screen Display from the monitor screen. Resetting from the On Screen Display returns everything in all the windows to factory presets.

TO EXIT THE ENTIRE ON SCREEN DISPLAY

❶ When you have finished work in any of the windows of the Main Menu (even selecting MUTE ON / MUTE OFF), you will return to the Main Menu and EXIT OSD will be highlighted. To exit, simply press the ON SCREEN DISPLAY button.

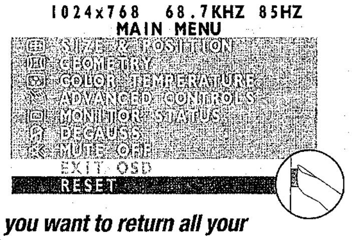

1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
MUTE ON
EXIT OSD
RESET

You can, however, use the ROTARY knob and scroll to another menu item, for example, ADVANCED CONTROLS. When ADVANCED CONTROLS is highlighted, press the ON SCREEN DISPLAY button and that window will replace the Main Menu. You can now make changes in that window. When done, you will, again, return to the Main Menu and EXIT OSD will be highlighted


1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
MUTE OFF
EXIT OSD
RESET

RESET ENTIRE ON SCREEN DISPLAY

❶ Selecting RESET from the Main Menu resets ***all*** the changes you have made in ***all*** the windows of the Main Menu. For example, if the language (See LANGUAGE, page 7.) has been changed, it is taken back to English.

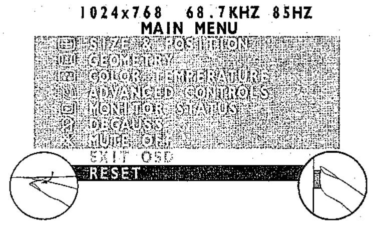

1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
MUTE OFF
EXIT OSD
RESET

Use this feature only when you want to return all your changes back to their original settings.

EXITING BRIGHTNESS, VOLUME, & CONTRAST

If you push the VOLUME, BRIGHTNESS, or CONTRAST button to exit (See steps 3 on pages 4 and 5.) and find yourself in the Main Menu, follow the steps below.

❶ Turn the ROTARY knob until Exit OSD is selected, then press the On Screen Display button.


1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
MUTE OFF
EXIT OSD
RESET

❷ Always exit the VOLUME, BRIGHTNESS, or CONTRAST On Screen Displays by pressing the VOLUME, BRIGHTNESS, or CONTRAST button (steps 3 on pages 4 and 5).

ADDITIONAL HOOK UP OPTIONS

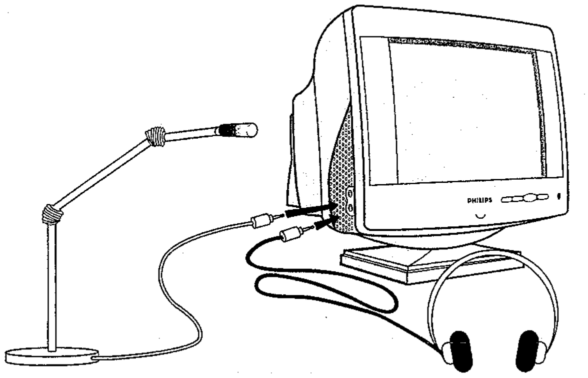
AUDIO AND USB SET UPS

MICROPHONE AND EARPHONES JACKS

In addition to built-in speakers and microphone, you can connect this monitor to optional earphones and a microphone. The jacks are on the left side of the monitor.

To use the microphone with your computer or an amplifier, make the connections shown below.

Note: When the earphones are plugged in, there will be no sound from the built-in speakers.

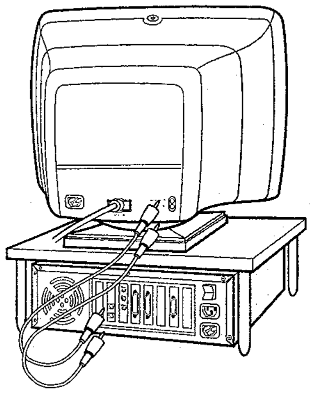


MICROPHONE AND AUDIO-IN JACKS

A microphone jack is on the back of the monitor. Use it and the supplied cable to connect your monitor to your computer or an amplifier (if either has the right type of jack).

On the back of this monitor there is also an audio-in jack. Use it and the supplied cable to connect your monitor to your computer or an amplifier (if either has the right type of jack).

See page 2 for more detailed illustrations of the jacks' locations.



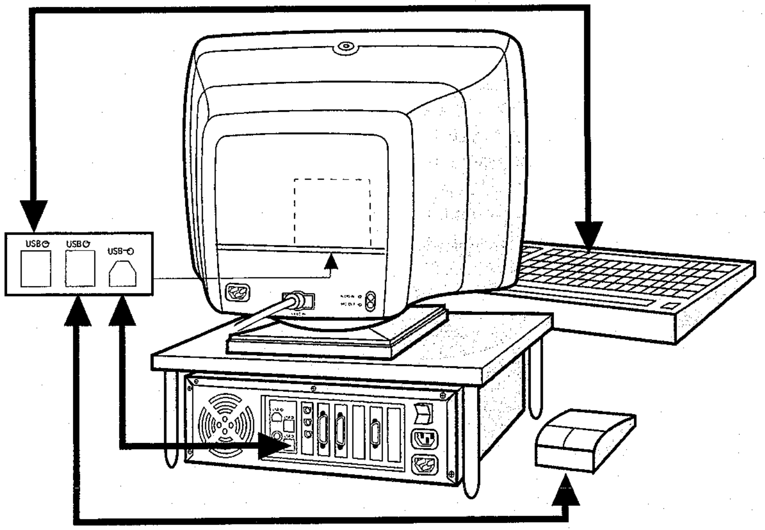
Refer to the owner's manuals included with your earphones and microphone for a detailed guide to setting up these items.

USB (OPTIONAL) CONNECTIONS

USB (Universal Serial Bus) is an innovation in connecting your IBM-compatible computer to your monitor. By using the USB, you will be able to connect your keyboard, mouse, printer, and other peripherals to your monitor instead of having to connect them to your computer. This will give you greater flexibility in setting up your system. Plus, you will have true plug-and-play capability. While the software is still being developed, Philips has included the hardware so you will be ready to take advantage of this next generation in computer development.

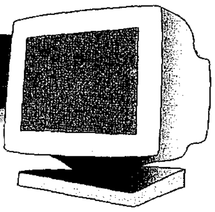
For an IBM-compatible Computer:

1. Turn off the computer.
2. Connect the (optional) USB Hub and cable to the computer and to the monitor. (Computer must have a USB port.)
3. Connect the power cable.
4. Turn on the monitor. Then turn on the computer.
5. With the installation of the correct software, you will be able to connect specially-made peripherals to the monitor.



Refer to the "Setting Up your Philips monitor" foldout for a more detailed guide to setting up your monitor.

ADDITIONAL INFORMATION



POWER SAVING FEATURE / GLOSSARY

AUTOMATIC POWER SAVINGS & PRESET RESOLUTION MODES

If you have VESA's DPMS compliance display card or software installed in your PC, the monitor can automatically reduce its power consumption when not in use. If input from a keyboard, mouse, or other device is detected, the monitor automatically "wakes up." The table at left shows the power consumption and signalling of this automatic power-saving feature. To turn this feature on and off, see page 7. The table at right shows the 9 factory preset resolution modes. The maximum number of modes is 13. This leaves room for additions.

Power Management Definition						
VESA's mode	Video	H-sync	V-sync	Power used	Power saving(%)	LED color
ON	Active	Yes	Yes	< 110W	0%	Green
Stand-by	Blanked	No	Yes	< 15W	86%	Yellow
Suspend	Blanked	Yes	No	< 15W	86%	Yellow
OFF	Blanked	No	No	< 5W	95.6%	Amber

This monitor is Energy Star compliant and power management compatible.

AS AN ENERGY STAR PARTNER, PHILIPS HAS DETERMINED THAT THIS PRODUCT MEETS THE ENERGY STAR GUIDELINES FOR ENERGY EFFICIENCY. The proper operation of the function requires a computer with VESA DPMS power management capabilities. When used with a computer equipped with VESA DPMS, the monitor is Energy Star compliant.

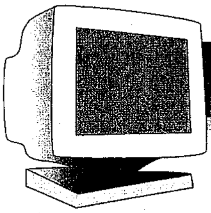
Factory Preset Resolution Modes

MODE	RESOLUTION	H. FREQ. (KHZ)	V. FREQ. (HZ)	STANDARD
1	640 x 400	31.5	70	VGA
2	640 x 480	31.5	60	VGA
3	640 x 480	43.3	85	VESA/85
4	800 x 600	46.9	75	VESA/75
5	800 x 600	53.7	85	VESA/85
6	1024 x 768	60	75	VESA/75
7	1024 x 768	68.7	85	VESA/85
8	1280 x 1024	80	75	VESA/75
9	1280 x 960	86	85	VESA/85

GLOSSARY

Here are a few definitions that may help you.

Brightness	Refers to how light or dark the overall screen is.
Color Temperature	A term used to refer to the color balance, uniformity, and saturation settings on your monitor screen. Color (even white, gray, and black) on your screen is achieved by blending (or balancing) three primary colors: red, green, and blue. As you increase or decrease any one of these colors, the color temperature changes. For example, at 9300° K, you are using more blue in your color temperature; therefore, your screen will be saturated with more blue and should appear uniformly "bluer" from one side of the screen to the other. At 6500° K, you are using more red in your mixture. True color balance is achieved when a gray object shows no traces of either red, green, or blue, regardless of the brightness of the image.
Contrast	Refers to the sharpness of objects on the screen and the ability to easily distinguish one from the other.
Degauss	The process by which metal parts of the screen are demagnetized in order to reduce screen distortion and color impurity.
DDC	(Display Data Channel) is a signaling standard established to help the performance of personal computers. In order to use this function, your computer must be designed for DDC. There are several types of DDC. Most computer monitors are designed for DDC1 and DDC2 Level B (DDC1 /2B).
Geometry	A set of controls that allows you to adjust the alignment of the picture on the monitor screen. The goal is to "square up" the picture. This is done by adjusting such items as balanced pincushion, pincushion, parallelogram, rotation, and trapezoid.
Moire	A fringe pattern caused by the interference between two superimposed line patterns.
Noise	Term used to refer to interference with the monitor's picture.
USB	Universal Serial Bus. A way to connect your IBM-compatible computer, monitor, and peripherals for true Plug-and-Play functions. This is an emerging technology.



Additional Information

Coming to Terms with this Book

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Specifications

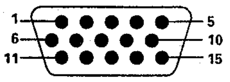
General	
CRT	
Screen size	:17" (43.2 cm) flat & square
Viewable Image Size (VIS)	:15.9"
Focusing method	:Dynamic focus
Dot pitch	:0.26 mm (horizontal)
Phosphor	:P22 or equivalent, medium short persistence
Screen treatment	:Anit-glare, anti-static
Display area	
Factory preset	:306 mm (H) x 230 mm (V)
Maximum usable	:323 mm (H) x 242 mm (V)
Scanning frequency	
Horizontal (line)	:30-86kHz (AutoScan)
Vertical (frame)	:50-160 Hz (AutoScan)
Input power	:100 - 240 V AC, 50 - 60 Hz
Power consumption	:100 Watt normal, 110 Watt max.
Thermal dissipation	:341.3 BTU normal, 375.4 BTU maximum
Input signal	
Video	:0.7 Vpp, 75 Ohm impedance
Sync	:Separate sync. TTL Composite sync. TTL level Sync on green video
Pedestal	
Tilt	:5° forward, 11° backward
Swivel	:90° left, 90° right
Physical	
Unit dimension (WxHxD)	:417 x 432 x 467 mm (16.54" x 17.14" x 18.53")
Net weight	:18.0 kg (39.6 lbs.)
Operating conditions	
Temperature	:0° C - 40° C
Humidity	:10% - 90%
Storage conditions	
Temperature	:-25° C - 65° C
Humidity	:5% - 95%

Specifications subject to change without notification.

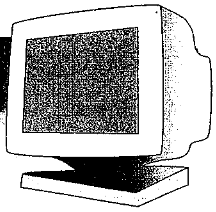
Pin Assignment

The 15-pin D-sub connector (male) of the signal cable:

Pin No.	Assignment
1	Red video input
2	Green video input
3	Blue video input
4	Identical output - connected to pin 10
5	Self test
6	Red video ground
7	Green video ground
8	Blue video ground
9	No pin
10	Logic ground
11	Identical output - connected to pin 10
12	Serial data line (SDA)
13	H. Sync / H+V
14	V. Sync (VCLK for DDC)
15	Data clock line (SCL)



ADDITIONAL INFORMATION



WHAT TO DO IF SOMETHING ISN'T WORKING

TROUBLESHOOTING

Having trouble? Something not working? Before calling for help, try these suggestions.

HAVING THIS PROBLEM?	**CHECK THESE ITEMS**
No Picture (Power LED not lit)	Make sure the Power cable is plugged in the wall and back of the monitor. Power button on top of the monitor should be in the ON position. Disconnect the monitor from the power outlet for about one minute.
No Picture (Power LED is Amber or Yellow)	Make sure the computer is turned on. Make sure the monitor cable is properly connected to your computer. Check to see if the monitor cable has bent pins. The Energy Saving Feature may be activated. See pages 7 and 17 for details.
No Picture (Power LED is Green)	Make sure the Brightness and Contrast controls are set correctly. See page 4 for details Make sure the monitor cable is properly connected to your computer. Check to see if the monitor cable has bent pins. Make sure the computer Power button is on.
Screen shows NO SYNC INPUT when you turn on the monitor.	Make sure the monitor cable is properly connected to your computer. See Setting Up Guide. Check to see if the monitor cable has bent pins. Make sure the computer is turned on
No Color or intermittent Black-and-White	If you are using a non-VESA-DDC standard video card, turn the DDC1 / 2B feature Off. See page 8.
Color appears blotchy	The picture may need degaussing. See page 6 for details. Remove any nearby magnetic objects. Face the monitor East for best picture quality.
Missing one or more colors	Check user settings of Color Temperature. See pages 10 and 11 for details. Make sure the monitor cable is properly connected to your computer. Check to see if the monitor cable has bent pins. Adjust Sync Input Select. See page 9 for details.
Dim Picture	Adjust the Brightness and Contrast controls. See page 4 for details. Check your video card and the manual instructions for it. It may be a non-VESA-DDC Standard card. Adjust Sync Input Select. See page 9 for details.
Picture is too large or too small	Adjust the Horizontal and/or Vertical Size. See pages 13 and 14 for details. Adjust the Zoom. See page 13 for details.
Edges of the picture are not square	The geometry controls require adjusting. See page 12 for details.
Picture has a double image	Eliminate the use of a video extension cable and/or video switch box. Face the monitor East for best picture quality.
Picture is not sharp	Check to make sure Moire is switched off. See page 9. Adjust Sync Input Select. See page 9 for details.
No Audio	Make sure mute is not activated. See page 5 for details. Make sure the Audio-in cable is securely plugged into the monitor and the audio source. See pages 2 and 16 for details.
Unstable Picture	Increase your refresh rate. Consult your computer manual for details.
Windows '95 cannot find your video card	Select "Super VGA" under STANDARD DISPLAY TYPES, or contact your video card manufacturer for the right drivers.

For further assistance, contact Philips at (800) 835-3506 or (423) 475-0280.

TELEVISION/MONITOR SAFETY GUIDELINES FOR THE PROFESSIONAL SERVICE TECHNICIAN

Safety Checks

After the original service problem has been corrected, a complete safety check should be made. Be sure to check over the entire set, not just the areas where you have worked. Some previous servicer may have left an unsafe condition, which could be unknowingly passed on to your customer. Be sure to check all of the following:

Fire and Shock Hazard

1. Be sure all components are positioned in such a way as to avoid the possibility of adjacent component shorts. This is especially important on those chassis which are transported to and from the service shop.
2. Never release a repaired unit unless all protective devices such as insulators, barriers, covers, strain reliefs, and other hardware have been installed in accordance with the original design.
3. Soldering and wiring must be inspected to locate possible cold solder joints, solder splashes, sharp solder points, frayed leads, pinched leads, or damaged insulation (including the ac cord). Be certain to remove loose solder balls and all other loose foreign particles.
4. Check across-the-line components and other components for physical evidence of damage or deterioration and replace if necessary. Follow original layout, lead length, and dress.
5. No lead or component should touch a receiving tube or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces or edges must be avoided.
6. Critical components having special safety characteristics are identified with an s by the Ref. No. in the parts list and enclosed within a broken line* (where several critical components are grouped in one area) along with the safety symbol s on the schematic diagrams and /or exploded views.
7. When servicing any unit, always use a separate isolation transformer for the chassis. Failure to use a separate isolation transformer may expose you to possible shock hazard, and may cause damage to servicing instruments.
8. Many electronic products use a polarized ac line cord (one wide pin on the plug). Defeating this safety feature may create a potential hazard to the servicer and the user. Extension cords which do not incorporate the polarizing feature should never be used.
9. After reassembly of the unit, always perform an ac leakage test or resistance test from the line cord to all exposed metal parts of the cabinet. Also, check all metal control shafts (with knobs removed), antenna terminals, handles, screws, etc. to be sure the unit may be safely operated without danger of electrical shock .

* Broken line ▬ ▪ ▬ ▪ ▬ ▪ ▬ ▪ ▬ ▪ ▬

Implosion

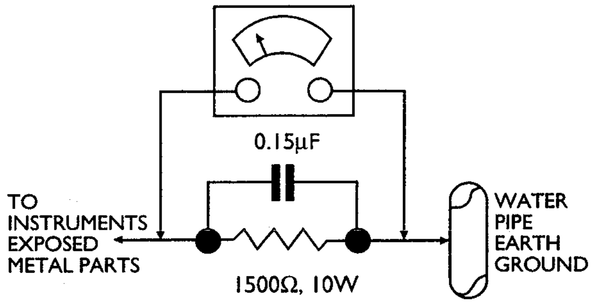
1. All picture tubes used in current model receivers are equipped with an integral implosion system. Care should always be used, and safety glasses worn, whenever handling any picture tube. Avoid scratching or otherwise damaging the picture tube during installation.
2. Use only replacement tubes specified by the manufacturer.

X-radiation

1. Be sure procedures and instructions to all your service personnel cover the subject of X-radiation. Potential sources of X-rays in TV receivers are the picture tube and the high voltage circuits. The basic precaution which must be exercised is to keep the high voltage at the factory recommended level.
2. To avoid possible exposure to X-radiation and electrical shock, only the manufacturer's specified anode connectors must be used.
3. It is essential that the service technician has an accurate HV meter available at all times. The calibration of this meter should be checked periodically against a reference standard.
4. When the HV circuitry is operating properly there is no possibility of an X-radiation problem. High voltage should always be kept at the manufacturer's rated value - no higher - for optimum performance. Every time a color set is serviced, the brightness should be run up and down while monitoring the HV with a meter to be certain that the HV is regulated correctly and does not exceed the specified value. We suggest that you and your technicians review test procedures so that HV and HV regulation are always checked as a standard servicing procedure, and the reason for this prudent routine is clearly understood by everyone. It is important to use an accurate and reliable HV meter. It is recommended that the HV reading be recorded on each customer's invoice, which will demonstrate a proper concern for the customer's safety.
5. When troubleshooting and making test measurements in a receiver with a problem of excessive high voltage, reduce the line voltage by means of a Variac to bring the HV into acceptable limits while troubleshooting. Do not operate the chassis longer than necessary to locate the cause of the excessive HV.
6. New picture tubes are specifically designed to withstand higher operating voltages without creating undesirable X-radiation. It is strongly recommended that any shop test fixture which is to be used with the new higher voltage chassis be equipped with one of the new type tubes designed for this service. Addition of a permanently connected HV meter to the shop test fixture is advisable. The CRT types used in these new sets should never be replaced with any other types, as this may result in excessive X-radiation.
7. It is essential to use the specified picture tube to avoid a possible X-radiation problem.
8. Most TV receivers contain some type of emergency "Hold Down" circuit to prevent HV from rising to excessive levels in the presence of a failure mode. These various circuits should be understood by all technicians servicing them, especially since many hold down circuits are inoperative as long as the receiver performs normally.

Leakage Current Cold Check

1. Unplug the ac line cord and connect a jumper between the two prongs of the plug.
2. Turn on the power switch.
3. Measure the resistance value between the jumpered ac plug and all exposed cabinet parts of the receiver, such as screw heads, antennas, and control shafts. When the exposed metallic part has a return path to the chassis, the reading should be between 1 megohm and 5.2 megohms. When the exposed metal does not have a return path to the chassis, the reading must be infinity. Remove the jumper from the ac line cord.



Leakage Current Hot Check

1. Do not use an isolation transformer for this test. Plug the completely reassembled receiver directly into the ac outlet.
2. Connect a 1.5k, 10W resistor paralleled by a 0.15uF. capacitor between each exposed metallic cabinet part and a good earth ground such as a water pipe, as shown above.
3. Use an ac voltmeter with at least 5000 ohms/ volt sensitivity to measure the potential across the resistor.
4. The potential at any point should not exceed 0.75 volts. A leakage current tester may be used to make this test; leakage current must not exceed 0.5milliamps. If a measurement is outside of the specified limits, there is a possibility of shock hazard. The receiver should be repaired and rechecked before returning it to the customer.
5. Repeat the above procedure with the ac plug reversed. (Note:An ac adapter is necessary when a polarized plug Is used. Do not defeat the polarizing feature of the plug.)

Picture Tube Replacement

The primary source of X-radiation in this television receiver is the picture tube. The picture tube utilized in this chassis is specially constructed to limit X-radiation emissions. For continued X-radiation protection, the replacement tube must be the same type as the original, including suffix letter, or a Philips approved type.

Parts Replacement

Many electrical and mechanical parts in Philips television sets have special safety related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. The use of a substitute part which does not have the same safety characteristics as the Philips recommended replacement part shown in this service manual may create shock, fire, or other hazards.

WARNING: Before removing the CRT anode cap, turn the unit **OFF** and short the HIGH VOLTAGE to the CRT DAG ground.
SERVICE NOTE: The CRT DAG is not at chassis ground.